

# **Nevada Health Information Exchange**

**DRAFT Health Information Exchange  
Technology Solution RFP for Public Comment  
on March 8, 2013  
is available online at:**

**<http://nv-hie.org/>**

## **NHIE HIE Solution Architect/Technical Director**

### **Proposed Job Description**

#### **Key Functions:**

- Leads the process of defining the vision, principles, and processes that guide the design and deployment of Health Information Exchange (HIE) services for the Nevada Statewide HIE System/Network per the State Health IT Strategic and Operational Plan.
- Directs and manages NHIE HIE technical development, implementation and maintenance.
- Works with NHIE HIE Vendor(s) Directs for the creation of an HIE infrastructure that defines the interrelationships between processes, information, HIE Vendor hosted services, and applications, and ensures adherence to the State HIE strategy.
- Ensures the proper maintenance of the overall Statewide HIE System/Network architecture and its ability to adapt to new technologies and changing needs. This includes supporting the selection and contracting of HIE services from HIE Vendors.
- Maintains ongoing relationship with contracted HIE Vendor(s) to ensure continuity of services and evolution of those services to meet NHIE customer and market demands.

#### **Responsibilities:**

- Based a selected HIE Vendor products and services, develop and maintain the overall NHIE Solution Architecture across several levels/domains including: business, information, application, and infrastructure to facilitate the design and deployment of the Statewide HIE System/Network as well as the addition of new service offerings.
- Takes an active role in defining the NHIE Service Portfolio by translating market demands, HIE Vendor capabilities, and the NHIE mission into a services portfolio that can be offered to the Nevada health community.
- Monitor the evolution of HIE related standards for messaging, security, privacy/consent, and information management to ensure adherence to defined HIE standards while enabling continued adoption of HIE services across the State.
- Responsible for working with HIE Vendor(s) to establish and continually improve HIE IT efficiency and effectiveness in key topic areas such as:
  - Technology convergence
  - Application integration & optimization
  - Leveraging existing standardized computing and storage/data platforms
  - Project design improvement
  - Infrastructure simplification
  - Solution updates, version releases and patches
  - Business continuity and disaster recovery
- Defines and promotes the standards, guidelines, and principles that the NHIE team uses to make its technology decisions to minimize risk through high quality design and supported technology.

- Works collaboratively with NHIE staff, HIE Vendor, and NHIE customers in integration, issue resolution, and workflow improvements.
- Maintains understanding of state and federal HIE regulations and works closely with resources representing state and federal exchanges.
- Serves as a lead resource to various NHIE projects.
- Promotes new technology-based capabilities or innovations throughout HIE solution based on industry standards and/or trends.
- Creates an HIE scorecard to report key metrics on HIE utilization, throughput, and data quality to provide stakeholders within the Nevada Statewide HIE System/Network. This includes support for ongoing performance monitoring and evaluation per NHIE policy, State mandates, and Federal requirements.
- Will require some on-call coverage responsibilities
- Consults with operational leadership, especially project areas to reduce risk through HIE design expertise and improved alignment of project decisions to accepted HIE architecture and standards.
- Earns a reputation of credibility with application and infrastructure groups in order to facilitate the successful adoption of HIE.
- Directs and coordinates work with NHIE staff and subcommittees
- Works with stakeholders of the Nevada Statewide HIE System/Network (including independent HIEs) and the Western States Consortium in development of strategies and approaches for increased HIE usage and adoption.

## Qualifications

### Required Qualifications:

- Bachelor's or Master's degree from an accredited college or university in information systems, engineering, health information management, health informatics, or a closely related field
- Minimum of 3 years Solution Architecture experience.
- Demonstrated prior experience in Health Information Technology (minimum of 2 years). Experience must include health solution definition (e.g., architecture), clinical integration in a heterogeneous systems environment; HIT vendor selection and management; data management; security; and system operations
- Technical proficiency in integration platforms.
- Ability to lead infrastructure, application, quality assurance, and business continuity professionals.
- Experience with conducting requirements analysis and creating information structures in support of design concepts.
- Able to articulate user experience and design principles to team members and clients.
- Excellent interpersonal, presentation, written communication, and facilitation skills including ability to create technical and user level documentation.

- Organizational skills to facilitate a productive working environment with strong ability to prioritize and work on multiple tasks at the same time.
- Able to perform independent evaluation, selection, and application of standard techniques, procedures and criteria.
- Able to effectively work in a large, geographically diverse system.
- Experience with integration engine technology, HL7, other health messaging standard and services, IHE Profiles, Java and HTML transaction formats.
- Experience with implementing solutions that fully secure individually identifiable health information (IIHI).

**Desired Qualifications:**

- Past history of successfully building social networks as resources to rapidly formulate solutions and resolve technical issues.
- Demonstrated experience working with representatives from State and Federal government, health IT leaders in industry, vendor user groups, and/or standards committees.
- Familiarity with Federal and State Health IT architecture requirements (e.g., eHealth Exchange/NwHIN).
- Advanced degree in health care policy, health information management, health informatics, public health, or a closely related field.
- Significant experience and proven track record of managing and rapidly implementing and deploying operational health systems.

**Compensation:**

Compensation will be market-based, corresponding to the experience level, credentials, and personal characteristics of the candidate and will include a competitive base salary along with a full range of employee benefits.

# Nevada Health Information Exchange

## HIE Vendor Requirements

NHIE Technology Subcommittee and NHIE Staff will need to confirm (one last time) the alignment of requirements from following before issuing to HIE Vendors:

- Sub-recipient SOW
- State HIT Plan
- Governance & Operations Document

State of Nevada  
Department of Health and Human Services  
Office of Health Information Technology

January, 2013

**INITIAL DRAFT**

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# 1. EXECUTIVE SUMMARY

NHIE will award a contract to a HIE Vendor that will provide the software and services necessary to implement and operate the technical components required for the Nevada State-wide HIE system. To be successful, the HIE Vendor must provide a HIE platform and associated services that will:

- Support high quality, safe, and efficient health care services;
- Deliver HIE-based information services to all providers operating in the State including and especially Medicare and Medicaid providers who will be eligible for incentive payments;
- Ensure the privacy and security of personal health information, both stored and exchanged;
- Enable intra-state, inter-state and nationwide health information exchange;
- Provide for a centralized consumer/patient consent management capability;
- Facilitate two way exchanges of information between the health community and the State of Nevada departments and agencies supporting Nevadans' health (e.g., DFHS of Medicaid care services; Public Health registries such as immunization, cancer; Secretary of State advanced directives);
- Support Meaningful Use requirements (Stages 1, 2, and 3); and
- Support the services and products called for as part of an overall NHIE business model that is financially viable and sustainable without state general funding.

The following subsections address component strategies for the development of the Nevada state-wide HIE system.

## 1.1. OVERVIEW OF STATE-WIDE HIE SYSTEM REQUIREMENTS

The envisioned Nevada state-wide HIE Network will be hybrid infrastructure model consisting of the NHIE run State-wide HIE System operating in partnership with HIE businesses that are or will operate within Nevada and neighboring states. This strategic approach enables commercial HIE/RHIO businesses to thrive within the state while the NHIE provides the "HIE of last resort" to ensure equal access to health information services for all residents and health consumers located in the State, and connectivity to the national HIE called eHealth Exchange (formerly NwHIN) to those HIE participants within the state requiring such connectivity for interstate interactions and with Federal Partners including Centers for Disease Control and Prevention (CDC), Indian Health Service (IHS), Veteran Affairs (VA), Social Security Administration (SSA), and the Department of Defense (DoD).

The State-wide HIE System to be implemented by the HIE Vendor will be based on architecture that is open and utilizes standardized functions within a Service Oriented Architecture (SOA) framework that is compliant with industry standards as well as the State's implementation of Medicaid Information Technology Architecture (MITA).

For the State-wide HIE System, HIE Vendor will implement the core information services that will enable the delivery of ARRA objectives.

The broad requirements the HIE Vendor must meet for the State-wide HIE System are described in Section 10 of the ONC approved State HIT Strategic and Operations Plan. Minimal elements of the Core Solution to be implemented by the HIE Vendor include:

- Master Patient Index that support patient identity and merge/split of patient records;
- Provider Directory (Facilities) services that enable master data management of facility information where care is being delivered to one or more patients;
- Provider Directory (Individual) services that enable master data management of information regarding individual care providers who are performing care for one or more patients;
- Access Control Services that automate policy and administrative rights that limit or control access to patient data (e.g., consent management);
- Centralize Consent Management Services that enable the Access Control Services to be made available to inter- and intra-state HIEs;
- Record Locator Services that enable search for retrieval of federated patient data;
- Terminology Engine that normalizes the incoming medical coding and terminology into consistent forms enabling semantic interoperability (i.e., consistent meaning of health information regardless of its source);
- Messaging and Interoperability Services that enable reliable and secure flow of information via standard messages that are implemented utilizing open interoperability standards and follow interoperability profiles defined by IHE (Integrating the Health Enterprise);
- Clinical Portal Services that enable authorized providers and other care givers to view a personal health record via a user interface that facilitate quick and easy understanding of a patient's health status and history while enabling easy access to detailed care information;
- Federal Partner Gateway Services that are certified and meet agreed integration standards for the sharing of patient information between HIEs operating in Nevada and the Federal Partners;
- State Agency Gateway Services (e.g., Medicaid, Immunization, etc.) that are certified and meet agreed integration standards for the sharing of patient information between HIEs operating in Nevada and the various health registries and health programs;
- Clinical Data Repository Services that will enable the storing of patient health information to the extent it is agreed by patients and aligned with State and Federal laws, regulations, and policies;
- Security Controls including authorization, authentication, access, audit, and breach reporting, and
- Performance Reporting Services that provide access to operational information about the HIE (e.g., numbers of messages by message type, by provider type; number of users by type, system outages, etc.).

Optional elements to be implemented by the HIE Vendor include:

- EHR for Physician Practices;
- Analytic Services;
- Clinical Decisions Support Services;
- Specialist Portal Services (e.g., emergency services, urgent services, etc.);
- Clinical Alerts and Notifications – Providers/ACOs;

- Clinical Alerts and Notifications – Payers for Managed Care;
- Clinical Alerts and Notifications – Patients; and
- Telehealth/Telemonitoring Support Services (e.g., messaging, portals, storage of clinical data, etc.).

## 1.2. OVERVIEW OF HIE VENDOR SERVICES

In addition to the Core HIE Solution, the selected HIE Vendor will be required to provide a series of services over a 3-5 year period of performance. These services include:

- System Implementation Services;
- Hosting Services;
- Administrative & Operational Support;
- Business Development Support;
- Outreach Services and Promotional Materials;
- Value-add HIE Solutions; and
- Enterprise HIE Services (optional).

## 2. BACKGROUND: NHIE OPERATIONAL FRAMEWORK

At its foundation, NHIE's basis for existence derives from Nevada's HIE vision, and the principles and values emanating from it. As context for the explanation of NHIE's roles, responsibilities and organization relationships, the NHIE Vision and Mission statements are reiterated below.

**Comment [GCY1]:** This is a full extract from the NHIE Organizational Framework & Operational Guidelines document. It may be more content than is useful for a HIE Vendor, but if an objective is to find a vendor that is willing to participate in some risk/reward opportunities, then they will need to see this level of detail.

### 2.1. NEVADA HIE VISION

The NHIE vision continues to be to establish a sustainable State-wide HIE business that delivers an information exchange capability and encourages broad use of health information services to improve and innovate the delivery of wellness and care to individuals in the State. The information exchange capability will enable the sharing of health care data across organizational boundaries (inter- and intra-state lines) and will eventually be shared with consumers to improve patient care coordination and safety, mitigation of medical errors and reduce unnecessary and duplicate testing.

The state of Nevada supports a resident population of approximately 2.7 million, with a transient population that reaches as much as 40 million or more. In addition to supporting native, resident Nevadans, the NHIE will also support this transient population that comes into the State as a result of the gaming and tourism industry. For this transient population, HIE services are essential to expedite routing and delivery of accurate information and enabling quick, timely treatment.

### 2.2. NEVADA HIE MISSION STATEMENT

*"Provide affordable and easy-to-adopt Health Information Exchange Services for the Nevada Health Care community and beyond (interstate), and encourage broad use of these services."*

### 2.3. PRINCIPLES AND VALUES THAT GUIDE NHIE ROLES, RESPONSIBILITIES, AND RELATIONSHIPS

The HIE Vision points to foundational principles and values which guide the design of NHIE Organization Landscape Model.

To be successful and sustainable, the NHIE must:

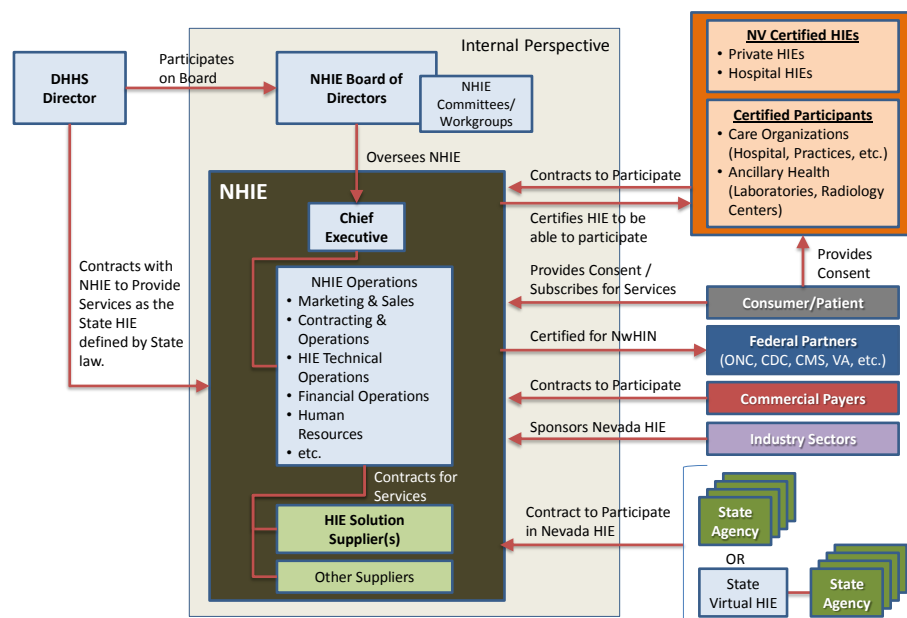
- Support high quality, safe, and efficient health care services through improvements in continuity of care and better information for care decisions.
- Promote the benefits of health information exchange and the usage of the State-wide HIE system among providers, payers and patients.
- Provide the individual patients with access to their health information and supporting tools that empower them to participate in their health and wellness.
- Ensure the privacy and security of personal health information, both stored and exchanged.
- Enable intra-state, inter-state, and nationwide health information exchange.
- Operate within a governance structure that is transparent, includes stakeholder participation, and is in compliance with all state and federal laws and regulations.

- Provide equal access for underserved and rural/frontier populations as well as those in the urban areas.
- Deliver HIE-based information services to Medicaid providers and to the Medicaid organization for improved care delivery to the State's Medicaid population.
- Deliver HIE-based information services to Nevada State agencies both within the Department of Health and Human Services (DHHS) as well as those in other State departments (e.g., Department of State, Department of Corrections, Department of Insurance).
- Effectively manage Cooperative Agreement resources as a one-time investment to enable long-term value for Nevadans and the Nevada health community.
- Establish a HIE business that is operationally and financially feasible, achievable, and sustainable.
- Help ensure HIE capabilities are available to enable meaningful use outcomes for health systems and providers.
- Facilitate adoption of health information services for Nevada patients and across relevant stakeholder organizations (e.g., hospitals, practices, payers, State agencies) across a broad range of uses and scenarios.
- Proactively foster innovation and adapt to emerging trends, standards and developments, both locally and nationally.

## 2.4. THE NEVADA HIE ORGANIZATION LANDSCAPE

The model presented in Figure 1-1 depicts the major organizations of Nevada's HIE environment and the salient relationships among them. Other than the NHIE, the organizations represented in this model are well known as key participants in the Nevada health community and patients' value chain.

Figure 1-1: Nevada HIE Organizational Landscape



By statute, the NHIE Board, under direction of the DHHS Director, will be the “governing body” for health information exchange in Nevada as well as a HIE service provider to patients and health organizations. The NHIE Executive Director will lead the NHIE Corporation, which is the “governing entity” as defined in statute.

Relationships among HIE organizational components will be controlled by combination of statute, policy, regulation, contractual agreement, and participation agreement. The organizations and the formalization of their relationships amongst each other will be used to execute the Nevada HIE mission. Key elements of that mission are to realize:

- Compliance with Federal laws, regulations, and policies,
- Compliance with Nevada State statutes and regulations,
- Advancement of the NHIE goals and objectives, and
- Achievement of the vision for Nevada HIE.

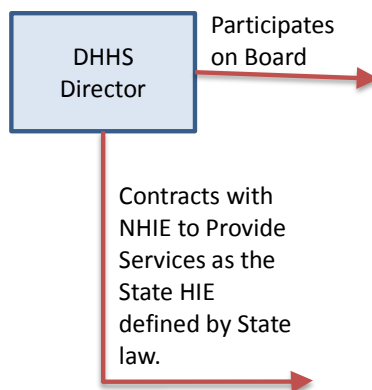
The sections that follow provide a description of the operational-level responsibilities, relationships, and accountabilities of the organizational entities existing in the Nevada Health Information Exchange (NHIE) landscape. These include the following major organizational entities: DHHS Director, NHIE Board of Directors and its Workgroups and Committees, the NHIE Non-Profit Operating entity, and “customers”/stakeholders (patients) of NHIE.

## 2.5. DHHS DIRECTOR

### 2.5.1. SCOPE OF

#### RESPONSIBILITY

Overarching NHIE Governance begins with the DHHS Director as defined in NRS 439.588. NRS 439.588 established the DHHS Director as the State HIT Authority, with the power to promulgate necessary regulations. Additionally, it requires the



Director of DHHS to establish the governing entity (NHIE) which should meet HITECH requirements and Health Insurance Portability and Accountability Act's Security and Privacy Framework (HIPAA).

As a state agency and frequent grant recipient, DHHS is itself, mandated to follow all applicable federal and state laws for purchasing and contracting activities. Relevant Nevada state laws and regulations are contained in the Nevada Revised Statutes (NRS) and the Nevada Administrative Code (NAC): NRS. 281 and 281A (Ethics in Government), NRS Chapter 333 and NAC Chapter 333 (State Purchasing Act), and NRS Title 8 (Uniform Commercial Code). The web site maintained by the Nevada Division of Purchasing includes contract and purchasing information for vendors and state agencies (<http://purchasing.state.nv.us>).

### 2.5.2. DHHS DIRECTOR RESPONSIBILITIES

Overall, the DHHS Director has a responsibility to advocate the board adoption and use of the State-wide HIE services by healthcare providers, payers, and patients. As the success of the HIE depends on a trusted relationship between the NHIE and the stakeholders, the DHHS Director will be responsible for ensuring integrity of the services, privacy of Nevadans, and transparency in operations.

#### 2.5.2.1. PARTICIPATES ON THE NHIE GOVERNING ENTITY BOARD OF DIRECTORS

In the appointed role of State HIT Authority, the DHHS Director is a participating member (ex officio) of the NHIE Governing Entity established under.

The DHHS Director may establish an HIE Advisory Forum (select stakeholder and academic representatives) to serve as an advisory to the State HIT Authority and the NHIE Business, regarding HIE issues, business intelligence, and technological innovations.

#### 2.5.2.2. CONTRACTS WITH NHIE TO PROVIDE SERVICES

Under NSR 439.588, The DHHS Director will contract with the NHIE as the governing entity which is being established as a 501(c)3 nonprofit organization.

The DHHS Director will provide funding from the State HIE Cooperative Agreement to the NHIE governing entity to establish the State-wide HIE system as part of a contractual relationship which ensures alignment with ONC grants management and reporting requirements, state contracting/reporting requirements, and the intent and purpose of the HITECH Act. As part of the contract with the NHIE, the DHHS Director will incorporate provisions which require the NHIE governing entity to provide information on status and progress on a periodical basis.

The NHIE Board of Directors, with the approval of the State HIT Authority, may either hire staff or contract with the governing entity to administer the State-wide HIE. The NHIE governing entity may, in turn, contract with vendors and state-certified community and/or regional HIEs to achieve State HIE objectives. Such contracting on the part of NHIE must be done so in compliance with applicable state laws and regulations, and in accordance with the terms and conditions of the contract with the State HIT Authority.

#### 2.5.2.3. RELATIONSHIP WITH ONC

Nevada's DHHS, the recipient of the state's HIE Cooperative Agreement and represented by the Nevada Office of Health Information Technology, will be the sole entity interacting with ONC and responsible for managing all reporting, periodic updates, budget management and Strategic and Operation Plans revisions related with the HIE Cooperative Agreement. In order to do so DHHS, will utilize its significant experience in managing Federal programs and funds, as historically over half of the department's biennial budget is federally funded, to meet the requirements.

At its discretion, DHHS may elect to contract with NHIE for services that will enable DHHS to meet ONC requirements in a more effective or efficient manner (e.g., achieving results defined in Evaluation Plan agreed with ONC).

#### 2.5.2.4. DHHS DIRECTOR RESPONSIBILITY FOR ESTABLISHING REGULATIONS

NSR 439.581 to 439.585 specifies a number of provisions in which the DHHS Director is to promulgate regulations necessary to enable the exchange of health information in the State. It is understood that there are existing Federal and Nevada specific laws and regulations already in place regarding the creation and maintenance of electronic medical records and the protection of electronically transmitted PHI. Regardless, new regulations will be required for the certification of HIE organizations, and HIE based sharing and retention of personal health information. It is the responsibility of the DHHS Director to promulgate such regulations necessary to meet the requirements set forth in statute.

In review of the current provider usage of electronic prescribing, it has been identified that certain existing provisions seem to be a barrier to expanded use of these services in prescribing of medications. As such, some existing regulations will need to be amended in order to meet federal requirements and support meaningful use.

Finally, patient consent is required for electronic transmittal of health records via electronic health information exchange. Patient's rights are specified, and the DHHS Director is required to promulgate regulations establishing standards for state-wide consent management services as well as the security and confidentiality of electronic health records and health information exchange in alignment with applicable federal laws and regulations.



## 2.6. NHIE BOARD OF DIRECTORS (GOVERNING ENTITY)

### 2.6.1. SCOPE OF RESPONSIBILITY

Current composition of the NV HIE Business Board of Directors (established May 2012) complies with mandates contained in the HITECH Act and State HIE Cooperative Agreement. The Board consists of seven individuals representing the major stakeholders in the Nevada health community as well as ex-officio members from DHHS. The stakeholder representatives include: hospitals, physician practices, health insurance, public health, pharmacies, patients, and Medicaid. The organization is accountable to the DHHS Director, as the State HIT Authority. During the 2011 session of the Nevada Legislature, SB 43 was passed aligning state and federal laws and regulations for enabling HIE, and insulating the NV HIE Business from impacts associated with administration changes.

Its first act has been to establish a set of By Laws, by which it may govern itself. Under Governance principles, those rules may then be monitored for compliance by both, the DHHS, and through Open Meeting Law, the Nevada Public. In that way, the Board of Directors remains accountable for adherence to its purpose.

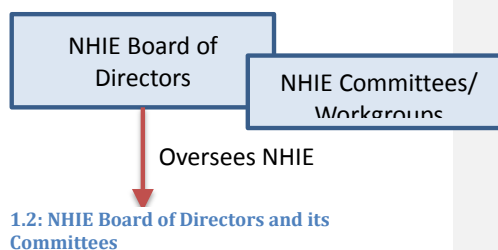
The NHIE Business Board of Directors will operate in a transparent manner. Minimally, it is expected to meet under Nevada Open Meeting Law at least four times during the state fiscal year. The Board will provide a neutral governance forum that oversees and governs the exchange of health-related information among public and private entities as well as patients or their representatives.

The specific responsibilities and approach for providing governance to the NHIE Corporation are defined in the bylaws that were formally introduced during the first meeting of the Board on August 21, 2012.

### 2.6.2. BOARD ROLES AND RESPONSIBILITIES

The composition of the initial Board consists of:

- The State Medicaid Agency's Deputy Director
- DHHS Director/representative as the State HIT Authority (ex officio)
- An MD/MS from Silver Sage Center for Family Medicine and Clinical Assistant Professor at the University of Nevada School of Medicine.
- Nevada Rural Hospital Partners President.
- Clinical Pharmacist, PharmD, RPh, Sunrise Hospital and Medical Center.
- Chief Operating Officer, AMERIGROUP Community Care of Nevada, MHA.
- Public Health Informatics Scientist, PhD, Southern Nevada Health District.
- State Program Manager, MEd, Connect Nevada.
- State HIT Coordinator (ex officio).



Key elements of the Board responsibilities include:

- Accountable to the NHIE members (to be defined in future Bylaw revisions) and the public-at-large.
- Establishment of a convening and coordination structure, including personnel and processes, for maintaining transparency and generating multi-stakeholder public-private collaboration.
- Monitoring compliance with nationally recognized HIE standards, protocols, and processes.
- Ensuring compliance with state and federal laws, including privacy protection.
- Oversight of Workgroups (e.g., Technical, Legal/Policy, Privacy/Security, etc.) and of HIE operations.
- Facilitation of consumer/patient input and public communications/transparency.
- Advice and counsel to the DHHS Director, as the State HIT Authority.

### 2.6.3. (SUB)COMMITTEES AND WORKGROUPS

As per the Bylaws of the NHIE Board of Directors they are permitted to establish standing committees, subcommittees and advisory committees to assist the NHIE Board with matters within the scope of powers, duties, and functions of the NHIE Board.

It is recommended that the NHIE Board of Directors make use of this prerogative and establish committees in the areas of Governance, Finance, Legal, and Financial Sustainability. In the near future the Board of Directors could consider establishing committees on Consumer Engagement, Behavioral Health, and on any other market issues as needed.

#### 2.6.3.1. EXPECTATIONS AND RESPONSIBILITIES FOR (SUB) COMMITTEE MEMBERS

- Membership shall include at least one member of the NHIE Board, any former members of the NHIE Board, any eligible members of the NHIE entity, and any members of the public who have experience or knowledge relating to matters of concern.
- Committees members are asked to draw on their expertise and perspective from across healthcare industry sectors and geographical areas with an eye toward supporting the greater goal of developing a State-wide resource for Nevada.
- Committees are expected to be multi-stakeholder and nonpartisan and all discussions, meetings and decision-making processes to be fully transparent.
- Committees will be asked to make consensus-based recommendations to the NHIE Board of Directors. In cases where consensus is not reached, the workgroup is expected to put forth a balanced, fair consideration of the pros and cons of an issue.
- Committee members are expected to respect the opinions and input of others and to engage in fair meeting conduct to work toward consensus recommendations.
- Committee members should attend meetings in person whenever possible.
- As the meeting will be held under Open Meeting Law public stakeholder input is encouraged.

#### 2.6.3.2. GOVERNANCE WORKGROUP

The Governance Workgroup is charged with recommending to the NHIE Board of Directors specific measures, listed below:

- A governance framework that will ensure broad-based stakeholder collaboration, transparency, and accountability;

- Methods to ensure the governance framework is characterized by:
  - Alignment with Medicaid and public health programs,
  - The ability to provide oversight and accountability to protect the public interest,
  - State-wide support of providers to achieve meaningful use,
  - Consumer oriented principles and policy priorities for HIE activities,
  - Mechanism(s) to ensure stakeholder perspectives are invited and integrated throughout the State-wide HIE planning process; and
- Strategic and operational models that ensure financial sustainability and a continuous role in facilitating the flow of relevant health information.

These measures are intended to reinforce NHIE principles espoused in the Section on Principles and Values of NHIE.

#### 2.6.3.3. LEGAL AND POLICY WORKGROUP

The Legal and Policy Workgroup is charged with recommending to the NHIE Board of Directors:

- A State-wide policy framework that protects the privacy and security of health information and allows for the incremental development of policies over time;
- Practical privacy and security strategies and policies to support secure HIE while protecting consumer interests;
- A process to harmonize federal and state legal and policy requirements to support HIE;
- Policies to resolve identified potential barriers to intrastate and interstate HIE;
- Legal agreements governing participation in State-wide HIE;
- State-wide compliance with applicable federal and state legal and policy requirements;
- Policies and guidance around Consent Management (See Consent Management below); and
- Provide input to other workgroups, specifically to the Clinical and Technical Operations Workgroup, to ensure consistency in privacy and security requirements.

#### 2.6.3.4. CLINICAL AND TECHNICAL OPERATIONS WORKGROUP

In the near term, the sustainment success of the NHIE will stem from its ability to develop business through technology and services that customers will pay for. This subcommittee will play a critical role in guiding, and raising visibility of innovative ideas from concept to implementation. The Clinical and Technical Operations Workgroup is charged with recommending to the NHIE Board of Directors:

- High-value/high-priority uses and use cases for HIE consistent with meaningful use of certified EHRs and additional clinical priorities;
- Strategy for State-wide HIE infrastructure to address high-priority use cases and clinical objectives;
- Development of a flexible and scalable State-wide technical architecture that supports State-wide interoperable HIE;
- Technical requirements as part of the Request for Proposal process to contract an HIE Vendor;
- How shared technical services may be utilized for the state's approach to:
  - Electronic prescribing and refill requests,
  - Electronic clinical laboratory ordering and results delivery,

- Clinical summary exchange;
- Strategy to support health IT and HIE adoption and meaningful use among the state's providers; and
- Evaluation of project including data collection and performance measurement.

#### 2.6.3.5. FINANCE WORKGROUP

The Finance Workgroup is charged with recommending to the NHIE Board of Directors:

- Analysis of the costs and ongoing funding streams associated with HIE
- Financing strategies to support adoption of HIE
- The value and business case (return on investment) of investments at the state, regional, and institutional levels
- Strategies to ensure sustainability

### 2.7. NHIE CORPORATION (GOVERNING BODY)

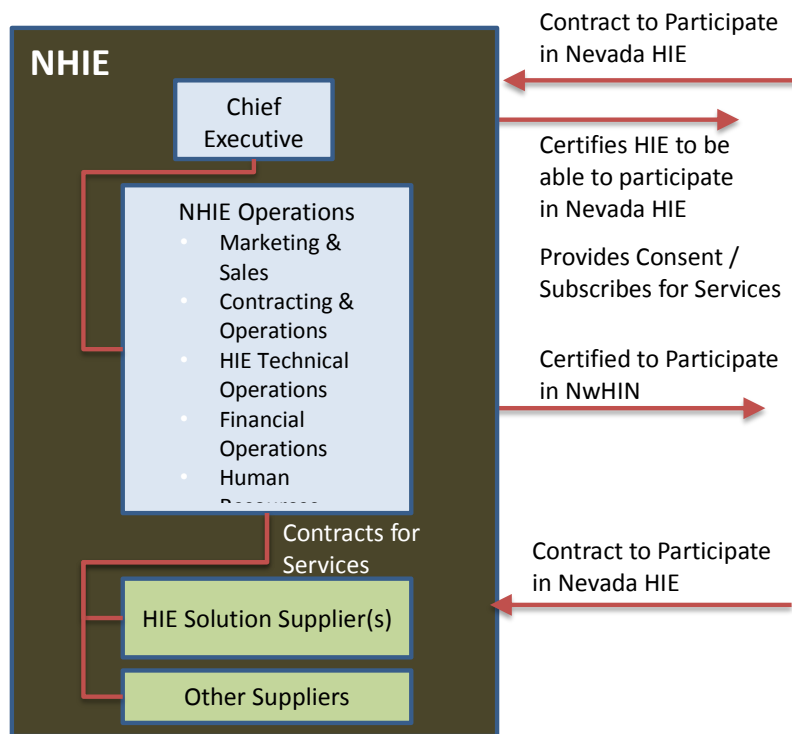
#### 2.7.1. SCOPE OF

##### RESPONSIBILITY

Under NSR 439.588, The NHIE governance and technical operations will be a contracted service to the state from a 501(c)3 nonprofit organization.

#### 2.7.1.1. ARTICLE S OF INCORPORATION

Once established and operational, the DHHS Director expects the NHIE 501(c)3 nonprofit organization to operate as a financially and technically self-sustaining business enterprise.



#### 2.7.2. NHIE CORPORATION ROLES AND RESPONSIBILITIES

The DHHS Director anticipates that the operational aspects of the business will be staffed and

Figure 1.3: NHIE Corporation Responsibilities

organized, as NHIE deems appropriate, to operate the following functions:

- Marketing and sales;
- Governance operations;
- Contracting and operations;
- HIE service operations;
- Financial operations;
- Human resources management; and
- Other operational functions as required.

In each function, the Chief Executive will be expected to develop a performance management framework that consists of a system for measuring success, analyzing and reporting, as well as executing or complying with Statutes, Policy, Regulation, Contracts, and Agreements (SPRCA). In addition to this governance activity, which focuses internally and upward to the Board of Directors and to DHHS, the NHIE Corporation will have responsibility for establishing formal relationships with service and technology vendors, independent/private HIE's, health providers and payers, and patients. As depicted in Figure 1.3, additional responsibilities include:

- Certifying organizations applying to be Qualified Participates (QPs) in the NHIE for sharing of patient health information;
- Contracting with HIE organizations that will participate in the NHIE as QPs such that their HIE service definitions as well as terms and conditions reflect the essential requirements of interoperability and financially sustainable businesses;
- Establishing participation agreements with health provider and payer organizations which are certified for sharing of health information via the NHIE services (i.e., Qualified Participants);
- Establishment of standards, evaluation of performance, management of performance with certification or de-certification, and performs any number of performance measurements for reporting upwards to the Board and beyond; and
- Certifying NHIE gateway services based on NwHIN standards and certifications for participation with the Federal partner health information exchange services (e.g., Military Health, Veteran Affairs, CDC, CMS, etc.).

The NHIE Board of Directors will delegate responsibility for specific activities to the NHIE Corporation, once it is incorporated and staffed:

- Hire and orient staff into the NHIE Business;
- Rapidly establish "go to market" plan to establish NHIE as a known entity in the Nevada health community, and to develop a "pipeline" of potential revenue sources for NHIE (e.g., grants, customers, sector specific sponsors, etc.);
- Develop and negotiate contracts and participant agreements with NHIE "customers" including data usage agreements, financial arrangements, mutual service levels, support services, and compliance with information sharing standards;
- Create the NHIE "brand" by utilizing all available channels (within limited budget) to communicate about the NHIE services and associated value propositions.

- Refine State developed NHIE Business Model (e.g., operating costs, revenue streams, innovation investments) to define the services/products and the pricing models necessary to become financially sustainable within 9 months;
- Rapidly complete a procurement for HIE technical services starting with the definition of HIE service requirements and completing with a signed contract for HIE technical services on a supplier hosted technology platform (i.e., running in supplier data center);
- Establish Advisory Committee(s) as needed to gain insights from NHIE stakeholders;
- Design and implement internal and external policies and procedures necessary to enact governance activity;
- Develop detailed plans for collaboration with key stakeholders of the NHIE;
- Define consumer friendly opt-in/opt-out policies and procedure to be implemented across the Nevada health community and the Nevada residents;
- Either apply to the ONC for authorization as an ONC-Authorized Testing and Certification Body (ONC-ATCB), or contract with a supplier to provide such certification services;
- Initiate a NHIE Business website as a common resource for HIE stakeholders (e.g., patients, hospitals, primary care doctors, payers, new participants and enrollees, etc.) as well as a public forum to post Board meetings and other open forum governance meetings;
- Issue communications to stakeholders that establish points of contact and access to information/resources;
- Design and implement supporting business processes and systems; and
- Customer support (e.g., providers for HIE access, patients for opt-out, opt-in, and complaints, etc.).

#### 2.7.2.1. GOVERNANCE ASPECTS OF THE NHIE SERVICE PORTFOLIO

Financial sustainability will require a clear articulation of the HIE-based services; the value of those services; who the service participants (or actors) will be; when participants will connect; and how much the revenue streams will be worth for NHIE. The approach to be taken will be determined over time, but there are some common frameworks to be applied. It is anticipated that the NHIE Business will develop a portfolio of services that will be delivered to the different stakeholders (or buyers) within the care community. The services will evolve over time in different service categories and for differing customer segments, starting with common or core services. To ensure that the service portfolio business milestones, financial goals and objectives align to the NHIE strategy, the NHIE Executive Director should put in place a Service Portfolio Management function. Such a function will include performance measurement, analysis and reporting, and program tracking.

#### 2.7.2.2. PRIVACY AND SECURITY OF PERSONAL HEALTH INFORMATION

The State will continually drive the privacy and security aspects of NHIE by researching, adopting, and applying, when appropriate, the best of industry privacy and security frameworks and practices. HIEs are expected to raise the bar on the need to provide information to providers, payers, and patients and to share information securely across many different types of networks, and the data protection requirements of HIPAA, FISMA, HITECH, and other data protection state and federal regulations.

The NHIE corporation will be expected to put in place specific governance processes to execute SPRCA established by DHHS or the HIE Board of Directors. It will identify and track specific key indicators pertaining to successful implementation or compliance, and report same.

See guidelines included in this document for more detail.

#### 2.7.2.3. NHIE LEGAL/POLICY DEVELOPMENT

The State is committed to establishing comprehensive policies and regulations that protect privacy, strengthen security, and allow clinicians and public health authorities to have critical access to health information when and where needed to improve health care delivery and health outcomes for all State residents. As an external governance responsibility, the NHIE must support the State's development of regulations and provide policy guidance addressing privacy and security needs for interoperable HIE among its participants, including: consent, authorization, authentication, access, audit, breach, confidentiality, data integrity, and data availability.

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Where DHHS will have the responsibility to prepare and conduct the workshops, NHIE will develop guidelines that will form the basis of regulations. These guidelines will be further developed by DHHS and the to-be-established regulation workshops. During public workshops and hearings DHHS will solicit feedback from the health community. This feedback will be used by DHHS to finalize regulations that will be submitted to Nevada State Legislature during the 2014 session. The table below provides an overview of the regulations to be established by the Director of DHHS pursuant to NRS 439.581 – 439.595.

Section	Provision	Domain
<b>NRS 439.587</b> 1(c)	Prescribe by regulation standards for the electronic transmittal of electronic health records, prescriptions, health-related information, electronic signatures and requirements for electronic equivalents of written entries or written approvals in accordance with federal law;	Standard and Interoperability Framework
1(d)	Prescribe by regulation rules governing the ownership, management and use of electronic health records, health-related information and related data in the State-wide health information exchange system; and	Data Ownership
1(e)	Prescribe by regulation, in consultation with the State Board of Pharmacy, standards for the electronic transmission of prior authorizations for prescription medication using a health information exchange	Standard and Interoperability Framework

Section	Provision	Domain
2	The Director may enter into contracts, apply for and accept available gifts, grants and donations, and adopt such regulations as are necessary to carry out the provisions of <a href="#">NRS 439.581</a> to <a href="#">439.595</a> , inclusive	Other
<b>NRS 439.588</b> 1	The Director shall establish or contract with not more than one nonprofit entity to govern the State-wide health information exchange system. The Director shall by regulation prescribe the requirements for that governing entity.	Requirements Governing Entity (NHIE)
4	The Director shall by regulation establish the manner in which a health information exchange may apply for certification and the requirements for granting such certification, which must include, without limitation, that the health information exchange demonstrates its financial and operational sustainability.	HIE Certification Requirements
<b>NRS 439.589</b> 1(a)	The Director shall by regulation prescribe standards: To ensure that electronic health records and the State-wide health information exchange system are secure;	Privacy and Security
1(b)	To maintain the confidentiality of electronic health records and health-related information, including, without limitation, standards to maintain the confidentiality of electronic health records relating to a child who has received health care services without the consent of a parent or guardian and which ensure that a child's right to access such health care services is not impaired;	Privacy and Security
1(c)	To ensure the privacy of individually identifiable health information, including, without limitation, standards to ensure the privacy of information relating to a child who has received health care services without the consent of a parent or guardian;	Privacy and Security
1(d)	For obtaining consent from a patient before transmitting the patient's health records to the health information exchange system, including, without limitation, standards for obtaining such consent from a child who has received health care services without the consent of a parent or guardian;	Patient Consent
1(e)	For making any necessary corrections to information or records included in the State-wide health information exchange system; and	Data Ownership
1(f)	For notifying a patient if the confidentiality of information contained in an electronic health record of the patient is breached.	Data Breach



Section	Provision	Domain
<b>NRS 439.590</b> 7	The Director shall adopt regulations establishing the manner in which a person may file a complaint with the Director regarding a violation of the provisions of this section. The Director shall also post on the Internet website of the Department and publish in any other manner the Director deems necessary and appropriate information concerning the manner in which to file a complaint with the Director and the manner in which to file a complaint of a violation of the Health Insurance Portability and Accountability Act of 1996, Public Law 104-191.	Complaint Filing

**Table 1: Nevada HIE related regulations to be established**

## 2.8. CERTIFIED PARTICIPANT (CP)

CPs are entities that have permission to access, consume and make available HIE services on the State-wide HIE system. CPs must meet a set of established criteria, have gone through an approval process, and have signed agreements to abide by State-wide Policy Guidance. CPs ensure that participants and vendors with which they have contracts meet the requirements to carry out State-wide policies. Examples of CPs include regional health information organizations

## 2.9. END USER

A health care provider or other authorized user that accesses NHIE services.

### 3. SCOPE OF WORK

This section of the RFP along with associated detailed requirements (**Appendices ??**) describes NHIE's current approach for fulfilling its obligations to implement and operate the Nevada State-wide HIE System for the State of Nevada, Department of Health and Human Services as a sub-recipient of the ONC Cooperative Agreement grant. Prospective HIE Vendors are expected to fully comprehend NHIE's approach and to respond to this RFP with a technical solution, an implementation plan, and a business model that enable the full implementation of that approach within the prescribed timeframes and within available funding budgets and expected future revenue streams.

The scope of work for this contract includes nine elements, each of which is described briefly below and with additional details provided in the subsections that follow. The work will be defined and managed as separate Work Orders to be performed under a single Master Services Agreement.

- **Core HIE Solution (Required):** The Core HIE Solution is comprised of the fundamental application services required for a fully functional HIE system for both query based exchange as well as HISP services for Direct Secure Messaging (Health Information Service Provider). Note: The selected HIE Vendor will be required to provide services that enable the ongoing operation of NV DIRECT, the Direct Secure Messaging service for providers in Nevada.
- **Enterprise HIE Services (Optional):**
- **System Implementation Services (Required):** The HIE Vendor will provide all services required to design, configure, develop, test, and implement the Core HIE Solution as well as future Value-add HIE Services to be defined. It is anticipated that NHIE will be performing implementation tasks and will require the HIE Vendor to provide training on the vendor solution, tools, and approaches. Project management will be a HIE Vendor responsibility for all services rendered.
- **HIE Integration Services (Required):** The HIE Vendor will be responsible for all or some portion of the interfaces between the Core HIE Solution and Certified Participants. Each integration effort will implement one or more interfaces each of which will include **on or** message types. NHIE views these integration efforts to be mini-projects that bring together resources from the three participating parties: NHIE, HIE Vendor, **?** Participants.
- **Hosting Services (Required):** HIE Vendor will supply the technical infrastructure and services needed to run, maintain, and support service delivery. Includes availability and maintenance of all required environments including development, testing, training/demonstration, pre-production/certification, production, disaster recovery, and "Sandbox". Note that hosting service performance will be managed through Service Level Agreements as noted in the **Appendix xx**.
- **Administrative & Operational Support Services (Required):** Following the implementation of the Core Solution and the integration of at least one Certified Participant, the HIE Vendor will deliver the administrative and operational support services necessary to delivery reliable HIE services (per SLAs). The required support services are as follows:
  - **HIE Performance Management**

- **Training & Education:** Includes training of end users and administrators within NHIE and to designated development, operational and support staff at NHIE participant organizations (i.e., NHIE customers). HIE Vendors will be required to implement a training plan that covers education requirements such as end-user training, ongoing technical assistance training, workflow re-design, interface development, and troubleshooting.
- **Help Desk & Technical Customer Support**
- **Technical Support**
- **Operational Metrics Monitoring & Reporting**
- **HIE Staffing Support**
- **Business Development Support (Required):** The HIE Vendor should be a willing partner in supporting the growth of NHIE customers connected directly into the State-wide HIE System. NHIE is requesting that HIE Vendors provide technical sales support (e.g., demonstration assistance, demonstration environment) during the early stages of business launch as well as during market entry of new Value-add services that the HIE Vendor is supporting.
- **Outreach Services & Promotional Materials (Required):** The HIE Vendor will support NHIE's communication and outreach efforts focused on rapid enrollment and adoption of NHIE services. The expected support includes: advice on what has worked for other state-wide HIEs; content regarding HIE success stories
- **Value-added HIE Solutions (Optional):** Value-added HIE Solutions will be incorporated into the NHIE product portfolio over time and as market demand warrants. HIE Vendors are encouraged to propose and recommend value-add services for implementation in an "at risk" basis in which NHIE and the HIE Vendor share in the on-going revenues rather than, or in addition to, reimbursement for implementation costs.

NOTE: NHIE operates under the State of Nevada Open Meeting Law. As such, HIE Vendors must be able to support NHIE's requirements to maintain compliance with that law.

### 3.1. CORE HIE SOLUTION

The HIE Vendor awarded with this contract will implement and host a Core HIE Solution comprised of a set of HIE Services that support connectivity and data transport exchange between multiple entities and systems in the state. The goal of Core HIE Solution is to provide a flexible infrastructure and serve as the gateway through which authorized organizations securely access patient information and, in the future, will also be able to access Value-Added Services. NHIE requires that a low risk approach be utilized wherever possible which include the use of proven software package based components rather than custom development.

The Core HIE Solution will create a foundation for organizations and participants to exchange health information across their organizational boundaries, such that two entities can:

- Identify and locate each other in a manner they both trust;
- Reconcile the identity of the individual patient to whom the information pertains;

- Exchange information in a secure manner that supports both authorization decisions and the appropriate logging of transactions; and
- Measure and monitor the system for reliability, performance and service levels.

The Core Solution must assure authentication of the end-user before enabling a request for information and authorization of the end-user to view the requested information or utilize other HIE services.

The **Core HIE Solution** consists of the following components:

1. General Requirements
2. Information Exchange and Transport Services
3. Consent Management
4. Privacy & Security Services
5. Identity Management & Authentication
6. Authorized User Directory Management
7. Provider Directory Services
8. Enterprise Master Patient Index Management
9. Record Locator Services
10. HIE Data Services
11. Portal Services

The following subsections provide additional detail for each of the above Core HIE Solution components.

### 3.1.1. GENERAL REQUIREMENTS

#### 3.1.1.1. SUPPORT OF MEANINGFUL USE REQUIREMENTS

The HIE Vendor shall provide data exchange and other services to enable providers seeking to achieve the objectives and criteria of Meaningful Use (MU) Stages 1, 2, and 3. Appendix XX identifies the specific MU Stage 2 requirements that the HIE Vendor must enable as well as other requirements that NHIE expects the HIE Vendor to support. Broadly, the expected support includes but is not limited to exchange key clinical information, submit electronic data to immunization registries, submit syndromic surveillance, and submit reportable lab results, submit clinical quality measures, provide a product roadmap and timelines for implementation of any functionality and services not currently offered that are related to future stages of Meaningful Use.

#### 3.1.1.2. STANDARDS BASED IMPLEMENTATION

The HIE Vendor shall provide an interoperable HIE technology solution for the Nevada State-wide HIE System, based upon applicable standards and a nationwide healthcare integration framework and recommendations such as Direct, IHE; specifically PIX/PDQ, XDS.b and XCA, HITSP, S&I Frameworks, HL7 v2 and v3, and other applicable standards, frameworks, and recommendations as determined by NHIE.

### 3.1.2. INFORMATION EXCHANGE AND TRANSPORT SERVICES

NHIE expects the HIE Vendor to deliver a HIE technology solution that will enable Certified Participants to easily exchange patient and population-specific health information data in compliance with ONC-endorsed interoperability standards, other nationally endorsed standards as applicable, and applicable laws and regulations within 60 days of notice by ONC, the State, and/or NHIE. NHIE expects all transactions, data submitted to, and data stored by the NHIE solution to utilize national and/or state standards in the creation, transmission and storage of patient health information as further described herein.

#### 3.1.2.1. GENERAL INTEROPERABILITY REQUIREMENTS

The HIE Vendor will satisfy the following general interoperability requirements as well as others more specifically defined throughout this RFP:

- The HIE Vendor shall provide a solution to NHIE that enables and promotes integration, interoperability, ease of enhancement, sustainment, and transition.
- The HIE Vendor shall implement and maintain a robust, query based, health information exchange infrastructure that enables Certified Participants to securely request and receive structured and unstructured electronic messages and content from other Certified Participants connected to the Nevada State-wide HIE Network (both interstate and intrastate).
- The HIE Vendor shall implement and maintain Direct Secure Messaging service to be operated as the NV DIRECT service that will provide a transport mechanism to securely send and receive email-like messages among other enroll Direct Secure Message users. This includes establishing and maintaining trusted services with other Health Information Service Providers (HISPs) thereby enabling Directed Exchange beyond those enrolled in NV DIRECT.

### 3.1.2.2. MESSAGE ROUTING / RETURN RECEIPT

This portion of the Core Solution will enable Certified Participants to securely exchange health information. It is essential that the solution is capable to satisfy, as a minimum, the following use cases in which a NHIE Certified Participant of the State-wide HIE System (i.e., directly connected with NHIE's operated by the selected HIE Vendor) is able to send and receive patient health records with:

- The NHIE Clinical Data Repository;
- An independent HIE system/organization that is certified by NHIE to operate in Nevada via the NHIE Record Locator Service (both intrastate and interstate);
- Participants of an independent HIE via a certified independent HIE system;
- State registries (e.g., cancer, immunization, birth defects, etc.);
- State programs (e.g., Medicaid, social services, labs, vital statistics, health insurance/benefit exchange, advanced directives, etc.);
- Federal Health Partners (e.g., DoD, Veteran Health Administration, Indian Health Services, Social Security Administration, etc.); and
- Others in the health community including commercial payers (e.g., eligibility, provider network, referrals, billing/claims, payment), volunteer organizations (e.g., American Red Cross, American Diabetes Association),

The HIE Vendor shall also meet the following minimum requirements:

- a. A messaging system to work with Identity Management and Authentication Services to implement authentication policies.
- b. The capability to utilize eHealth Exchange as a primary mechanism to send and receive health information with Certified Participants, Federal Health Partners.
- c. A capability that maintains statistics and provide reports on users, transactions, and traffic information.
- d. A capability that aggregates query results for presentation of PHI to the requestor.
- e. Accept and respond to all queries directed towards Core Services: provider directory search or patient ID searches are specific core services.
- f. Support for routing rules that enable delivery of designated information to specified destinations. (e.g., to automate routing reportable labs to Public Health).
- g. Ability to send and manage both transactional and batch messages.
- h. Capabilities and mechanisms that ensure messages are processed in the order and sequence that they were intended (e.g., message retraction may arrive before message send in a batch and should be processed in sequence).
- i. Ability to transmit message metadata and history to a requestor.
- j. Robust capabilities that implement ongoing measurement of message and transaction performance and responsiveness for each service. Based on NHIE's approval of these measurements, the HIE Vendor shall document and demonstrate these measures on a predefined interval as defined by NHIE.

- k. Of great importance, the messaging functionality must be extensible enabling NHIE to enable support to other programs and services including, but not limited to, the following: all payer claims database, payer-provider network information system (e.g., coverage reporting, contracting, health benefit/insurance exchange), eligibility verification, claims, fraud/waste/abuse analytics, credentialing, telemedicine/telemonitoring, quality reporting, State or payer incentive programs.

### 3.1.2.3. TERMINOLOGY AND TRANSFORMATION SERVICES

#### **Terminology Service**

NHIE anticipates the immediate need for the HIE Vendor to be able to transform terminology of inbound and outbound messages (at all layers including the SOAP envelope, the headers, payload body, metadata, and contents) to provide flexible interfaces to our exchange partners. In addition, the NHIE anticipates the need for the HIE Vendor to translate fields and other content from one (potentially proprietary) vocabulary to other vocabularies. Preference will be given to HIE Vendors that offer an integrated, complete, robust, and easy-to-administer interface engine. Where independent certifications and testing validations are required for such translation capabilities, the HIE Vendor will secure such independent validation at no additional cost to NHIE.

As an example, the HIE Vendor's terminology services will transform laboratory order and result messages to conform to the format, coding, and transport requirements of the receiving HIE, Certified Participant, and/or public health agency. Vocabulary services, including access to/mapping of LOINC, SNOMED, etc. could be a combination of local and central services.

#### **Message Transformation Service**

The HIE Vendor shall provide a service that will enable a centralized clearinghouse for transforming clinical summary documents among providers and patient-designated entities. This service would be analogous to the laboratory-routing clearinghouse, and would enable organizations that may lack standards-compliant EHR systems to also exchange clinical summary data. This service will allow for the clinical summary exchange for care coordination, capability and capacity for the translation of legacy messaging to standardized CCD documents and related documents such as the CCR and CDA. This should include all sections of a CCD (examples: labs, radiology, transcriptions). The HIE Vendor shall:

- Validate/transform clinical results from source formats to CCD/CCR formats; and
- Transform from CCD/CCR formats to specific targets based on a specific source/destination system format, coding, and transport requirements.

In addition, the HIE Vendor shall provide a capability to transform messages between different document formats (e.g., HL7v2 to v3 or EDI to XML), to parse and validate various document formats (e.g., XML and XSD), and to create and map across different message envelopes and content requirements based on source and target requirements. Where independent certifications and testing validations are required for such transformation capabilities, the HIE Vendor will secure such independent validation at no additional cost to NHIE.

#### 3.1.2.4. PROCEDURAL RESULTS DELIVERY

The HIE Vendor shall implement and maintain messaging services that enable Certified Participants to route procedural results from source to target in a structured and standard format (both Directed Exchange and robust query-based exchange). NHIE Certified Participants will also be able to request and retrieve procedural results (as allowed by professional standards and the Consent Management services).

#### 3.1.2.5. EXCHANGE OF CONTINUITY OF CARE DOCUMENTS (CCD) /CONTINUITY OF CARE RECORD (CCR) – FUNCTIONALITY AND STANDARDS

The HIE Vendor shall provide functionality and meet standards to support the Nevada State-wide HIE exchange of the Continuity of Care document (CCD) and related documents, such as the Continuity of Care Record (CCR) and Clinical Data Architecture (CDA). Further, the HIE Vendor's solution shall support the IHE Cross-Enterprise Document Sharing (XDS) standards and specifications. Additional requirements include:

- a. The HIE Vendor shall process all transactions received and sent by the NHIE (e.g. CCD exchange utilizing a provider directory look and then a clinician may directly use the Nevada HIE messaging component to send a CCD to another clinician).
- b. The HIE Vendor shall securely receive and route CCD/CCRs from sending to receiving system.
- c. The HIE Vendor shall validate CCD/CCR formats from source system.
- d. The HIE Vendor shall utilize core services for summary record exchange.
- e. The HIE Vendor shall parse and restructure CCDs into a longitudinal history.
- f. The HIE Vendor shall transform CCDs into specific encounters to support specific transactions such as referrals.
- g. The HIE Vendor's solution shall support consolidation and de-duplication of clinical data in a CDA/CCD. The resulting CCD shall include all clinical data available via the Nevada State-wide HIE Network.

The HIE Vendor shall provide an HIE technology solution supporting, enabling or facilitating individual/authorized data exchange with patients, including but not limited to the following use cases:

- Provider sends a clinical summary of an office visit to the patient/caregiver (via message, PHR, or other patient-centered health information management system).
- Provider sends reminder for preventive or follow-up care to the patient/caregiver (via message, PHR, or other patient-centered health information management system).
- Patients provide advance directives to requesting providers (via message, PHR, or other patient-centered health information management system).

The HIE Vendor must implement patient/caregiver communications that enable Meaningful Use Objectives/Measures of Stages 1, 2, and 3.

#### 3.1.2.6. EXCHANGE OF STRUCTURED LAB DOCUMENTS



The HIE Vendor will implement and maintain a service that will provide a centralized clearinghouse to route laboratory reports to requesting providers as well as public health and other agencies as mandated or allowed by federal and state laws and regulations; and in accordance with national standards and specifications. The centralized routing service is intended to replace the numerous, point-to-point connections among laboratories, EHRs and public health databases with a single routing hub connected to participating entities.

The HIE Vendor will implement and maintain services required to implement structured lab exchange in accordance to the following scenarios:

**1. Lab Ordering Process and Transaction Set**

The HIE Vendor shall provide services and functionality supporting lab ordering transactions including, but not limited to, the following process and transaction set:

- a. Provider creates a lab order transaction set, containing but not limited to the following: Lab Order, Test Information, Diagnosis, Patient Information, Insurance Information, Patient History (for pathology labs), and "Copy To" information.
- b. Provider sends order to lab via Nevada State-wide HIE System (e.g., provider and lab are both connected directly to NHIE) and/or Network (e.g., provider and/or lab are connected via one or more independent HIEs as well as NHIE).
- c. Specimens are received at the lab.
- d. The lab received any orders submitted via the Nevada State-wide HIE System or Network.
- e. "Implementation Guide for Delivery Notification in Direct" This guide was specifically developed for using Direct as a means to receive lab results.
- f. The HIE Vendor shall support electronically routing lab orders to one or more lab vendors as directed by the ordering provider.

**2. Lab Results Delivery to Providers and Other Authorized Persons**

The HIE Vendor shall provide services and functionality supporting lab results delivery transactions that will include but are not limited to the following process and transaction set:

- a. Lab creates a results transaction set: Test Results, Comments, Normal Range (optional), Pathology Data (optional), Other Segments (optional), Performing Lab Information, "Copy To" information
- b. Lab sends results transaction set to ordering provider and any approved agents/"copy to's" as directed and designated by the ordering provider via the HIE.
- c. HIE Vendor shall provide the capability to deliver lab results directly to patients without ordering provider's authorization if and when permitted by law and regulations.
- d. The HIE Vendor shall share lab results with treating providers or providers with a relationship to the patient.

**3. Lab Results Delivery for Public Health Reporting**

The HIE Vendor shall provide services to present a centralized service that will route laboratory reports to public health and other agencies as mandated by federal and state laws and regulations, and in accordance with national standards and specifications, applicable law, and NHIE policy. The centralized routing service is intended to replace the numerous, point-to-point

connections amongst and between laboratories, order entry systems (e.g., EHRs, EMRs), and public health databases with a single routing hub connected to participating entities. These services include, but are not limited to, the following process and transaction set:

- a. Lab creates the Public Health Lab Results Transaction Set in their LIS/HIS, which includes: Test Results, Patient Demographic Data, Comments, Normal Range (optional), Pathology Data (optional), Other Segments (optional), and Performing Lab Information;
- b. Lab sends Public Health Lab Results transaction set via HIE services; and
- c. Public Health receives results and incorporates them into their records/databases.

In addition, the HIE Vendor shall:

- Securely route clinical data to analytical service and quality aggregating/reporting organizations;
- Pseudonymize PHI for aggregation; and
- Aggregate and perform analytics and reporting of aggregated lab results against specific clinical guidelines and patient clinical information.

#### **4. Players in Lab Orders & Results**

HIE Vendor response to this RFP must fully explain how messaging services, transaction standards, consent management, and policy vocabularies will be utilized in the proposed solution and how it will be configured and implemented to support the above scenarios in each of the following profiles:

- Lab Order Player Profile 1 – Provider is connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor) / Lab connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor);
- Lab Order Player Profile 2 – Provider is connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor) / Lab connected directly to an independently operated HIE system (operated and maintained by a different HIE vendor);
- Lab Order Player Profile 3 – Provider is connected directly to an independently operated HIE system (operated and maintained by a different HIE vendor) / Lab connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor);
- Lab Order Player Profile 4 – Both the Provider and the Lab are connected directly to an independently operated HIE system (operated and maintained by a different HIE vendor) / Lab result identifies a reportable disease that must be communicated to Nevada Public Health via NHIE’s HIE system (operated and maintained by HIE Vendor).

#### **3.1.2.7. EXCHANGE OF MEDICATION INFORMATION**

The HIE Vendor shall implement and maintain services that enable Certified Participants to retrieve and aggregate medication history including retrieval and aggregation of prescription (new, refills, etc.) information from identified sources (e.g., SureScripts, others) and provide to medical providers, including pharmacists.

##### **1. SureScripts e-Prescribing Network**

The HIE Vendor shall exchange information in SureScripts e-Prescribing network for medication management and history search.

**2. Exchange of Medication Information – Orders**

The HIE Vendor shall provide functionality and meet standards, to enable the participants in the Nevada State-wide HIE System and Network exchange medication prescription orders and dispensing information.

**3. Exchange of Medication Information – Medication History**

The HIE Vendor shall provide appropriate access (as determined by NHIE) to medication history. To do so, the HIE Vendor shall implement and maintain a solution capability to retrieve and aggregate a medication history including retrieval and aggregation of prescription (new, refills, etc.) information from identified sources (e.g., SureScripts, others) to medical providers, including pharmacists. The solution should support processes such as the following:

- a. Patient presents for care.
- b. As part of the intake process (regardless of setting), provider queries NHIE (or other Certified HIE in the State-wide Network) for “medication history.”
- c. Service responds with medication history, presented in a useful and meaningful way.
- d. Provider reviews the information and identifies medications prescribed but not filled, potential interactions, medications to continue/discontinue, refills, etc.
- e. Provider diagnoses and treats patients using medication history obtained directly or indirectly through the NHIE.

In addition, the HIE Vendor shall:

- Retrieve medication administration record information. As part of the bid response, HIE Vendor shall describe the standards and/or specification used to classify or categorize;
- Aggregate prescription information; and
- Verify medication history.

**4. Players in Medication History**

HIE Vendor response to this RFP must fully explain how messaging services, transaction standards, consent management, and policy vocabularies will be utilized in the proposed solution and how it will be configured and implemented to support the above scenarios in each of the following profiles:

- Medication Player Profile 1 – Provider is connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor) / Medication information source(s) connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor);
- Medication Player Profile 2 – Provider is connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor) / Medication information source(s) connected directly to an independently operated HIE system (operated and maintained by a different HIE vendor);
- Medication Player Profile 3 – Provider is connected directly to an independently operated HIE system (operated and maintained by a different HIE vendor) / Medication information source(s) connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor);

#### 3.1.2.8. EXCHANGE OF RADIOLOGY INFORMATION

The HIE Vendor shall implement and maintain a service that facilitates the transmission of radiology results to the appropriate location.

##### 1. Radiology Results Delivery

The HIE Vendor shall route radiology text results to ordering provider(s) and shall share radiology results with treating providers or providers with a relationship to the patient.

##### 2. Radiology Image Delivery

The HIE Vendor shall route or link images to ordering provider(s) and shall route or link images to treating provider(s) of a patient.

##### 3. Players in Radiology Information

HIE Vendor response to this RFP must fully explain how messaging services, transaction standards, consent management, and policy vocabularies will be utilized in the proposed solution and how it will be configured and implemented to support the above scenarios in each of the following profiles:

- **Medication** Player Profile 1 – Provider is connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor) / Radiology information source(s) connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor);
- **Medication** Player Profile 2 – Provider is connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor) / Radiology information source(s) connected directly to an independently operated HIE system (operated and maintained by a different HIE vendor);
- **Medication** Player Profile 3 – Provider is connected directly to an independently operated HIE system (operated and maintained by a different HIE vendor) / Radiology information source(s) connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor);

#### 3.1.2.9. eHEALTH EXCHANGE GATEWAY (FORMERLY NWHIN)

The NHIE Vendor shall implement and maintain an eHealth Exchange Gateway service providing for a single State-wide implementation of the eHealth Exchange. The gateway shall be made available to authorized users and Certified Participants of the Nevada State-wide HIE Network. This service is the required standard for interoperability with federal partners. In addition, NHIE anticipates that the HIE Vendor will need to support the use of eHealth Exchange for connectivity with Certified Participants (e.g., national and regional integrated delivery networks and hospital organizations).

The eHealth Exchange Gateway must support all versions of the CONNECT instance in production use by participants and candidates for the next 5 years, plus must support all other implementations of eHealth Exchange Gateway (or NWHIN) 2010/2011/and subsequent approved production specifications in production use by participants and candidates within the next 5 years. NHIE requires support for the eHealth Exchange Gateway (or NWHIN) PD, QD, RD, AD and DS specifications, plus the core AF and MP specifications. The NHIE intends to act as a single gateway for all connected independent HIEs and Certified Participants in the state for external exchange partners including, but not limited to, federal entities (SSA, DoD, VA, IHS), other states implementing eHealth Exchange Gateway specifications, the Care Continuity Consortium, the EHR-HIE Interoperability Workgroup (<http://www.interopwg.org/>), acting as both an initiating gateway and a responding gateway for both independent HIEs, Other

Authorized HIEs, and external gateways. As such, the HIE Vendor solution for the eHealth Exchange Gateway must allow for full bidirectional proxying. HIE Vendor will need to address and demonstrate scalability of their eHealth Exchange Gateway solution.

### **Players in eHealth Exchange Messaging**

HIE Vendor response to this RFP must fully explain how messaging services, transaction standards, consent management, and policy vocabularies will be utilized in the proposed eHealth Exchange solution and how it will be configured and implemented to support the above scenarios in each of the following profiles:

Profiles for eHealth Exchange Gateway available to those directly connected to NHIE system:

- eHealth Exchange Player Profile 1 – Provider sending information is connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor) / Message destination utilizes eHealth Exchange for messaging and is connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor);
- eHealth Exchange Player Profile 2 – Provider sending information is connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor) / Message destination utilizes eHealth Exchange for messaging and is connected directly to an independently operated HIE system (operated and maintained by a different HIE vendor);
- eHealth Exchange Player Profile 3 – Provider requesting information is connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor) / Source(s) of information utilizes eHealth Exchange for messaging and is connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor);
- eHealth Exchange Player Profile 4 – Provider requesting information is connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor) / Message source utilizes eHealth Exchange for messaging and is connected directly to an independently operated HIE system (operated and maintained by a different HIE vendor);

Profiles for eHealth Exchange Gateway available to those not directly connected to NHIE system:

- eHealth Exchange Player Profile 5 – Provider sending information is connected to an independently operated HIE system (operated and maintained by a different HIE vendor) / Message destination utilizes eHealth Exchange for messaging and is connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor);
- eHealth Exchange Player Profile 6 – Provider sending information is connected to an independently operated HIE system (operated and maintained by a different HIE vendor) / Message destination utilizes eHealth Exchange for messaging and is connected directly to an independently operated HIE system (operated and maintained by a different HIE vendor);
- eHealth Exchange Player Profile 7 – Provider requesting information is connected to an independently operated HIE system (operated and maintained by a different HIE vendor) / Source(s) of information utilizes eHealth Exchange for messaging and is connected directly to NHIE’s HIE system (operated and maintained by HIE Vendor); and

- eHealth Exchange Player Profile 8 – Provider requesting information is connected to an independently operated HIE system (operated and maintained by a different HIE vendor) / Message source utilizes eHealth Exchange for messaging and is connected directly to an independently operated HIE system (operated and maintained by a different HIE vendor).

#### 3.1.2.10. NEVADA STATE HIE GATEWAY

The Nevada State HIE Gateway provides for a single access point for the health community to access health information maintained by the State of Nevada health agencies and departments (e.g., Medicaid, Public Health, Secretary of State, Silver State Health Insurance Exchange (SSHIX), etc.) and to share health information with the State agencies (e.g., immunization registry, cancer registry, birth defect services, birth & death notices, Medicaid patient health status and care, advanced directives, etc.). It is envisioned that providers will have direct access to the Nevada State HIE Gateway as subscribers to NHIE or via other trusted HIEs operating both inside and out of Nevada.

All such exchanges will follow IHE profiles and must support all permutations of Certified Participants that are directly connected to NHIE (the State-wide HIE System) or to independent Certified Participant HIEs (via the Nevada State-wide HIE Network).

#### 3.1.2.11. DIRECT SECURE MESSAGING

The HIE Vendor shall implement and maintain a Directed Exchange service that will include a common transport layer for all message routing persistence, guaranteed delivery, content-based routing, that can support content transport based on Direct's SMTP and XDR for Simple Health Transport specifications. (<http://wiki.directproject.org/Applicability+Statement+for+Secure+Health+Transport> and <http://wiki.directproject.org/XDR+and+XDM+for+Direct+Messaging>). Additionally, the HIE Vendor's solution must comply with the Direct Project's Implementation Guide for Delivery Notification <http://wiki.directproject.org/file/detail/Implementation+Guide+for+Delivery+Notification+in+Direct+v1.0.pdf>. Support for IHE, XDS.b, or other lower-level protocols such as TCP or HTTP.

The HIE Vendor is responsible for obtaining, managing, and administering required digital certificates. NHIE will work with the HIE Vendor to determine the most cost effective method for procuring and maintaining digital certificates. In addition, NHIE and the HIE Vendor will work together to effectively price and deliver NV DIRECT services according to market demand in the State.

State of Nevada Department of Health and Human Services (DHHS) has successfully deployed the Nevada DIRECT Secure Messaging Service (NV DIRECT) to Nevada health care providers. NHIE will take over this service and the enrolled users of NV DIRECT no later than October 1, 2013. As such, the HIE Vendor will be responsible for transitioning the current NV DIRECT services from the Orion Health platform to the DIRECT Secure Messaging service of the platform of the selected HIE Vendor. This transition effort includes, but is not limited to:

- Migration of all NV DIRECT addresses for enrolled users;
- Migration of all NV DIRECT login credentials for enrolled users (i.e., user identifiers, passwords, certificates);
- Migration of all NV DIRECT saved and historic messages for enrolled users;

- Provision of awareness communications to all enrolled NV DIRECT users; and
- Provision of training and reference materials for the new Secure Direct Messaging service (e.g., logon, user interface, etc.).

Following the transition, the resulting HIE Vendor's Direct Secure Messaging platform shall support continued growth of enrollment as well as the ability to interoperate with national HISPs that may have a presence in Nevada, the Western States Consortium, and other states' HISPs to support regional and nationwide health information exchange using the Direct project standards. This support and interoperability includes certificate publication, message routing, and provider lookup and publication of provider information. Note: HIE Directed Exchange Services must be available to all Eligible Professionals (EP)s and Eligible Hospitals (EH)s in time for EPs and EHs to meet Meaningful Use criteria.

#### 3.1.2.12. INTERSTATE EXCHANGE SUPPORT

The HIE Vendor shall provide capabilities to support interstate HIE exchange aligned to specific instances and use cases where such exchange occurs and as determined by NHIE. It is anticipated that the HIE Vendor will become (if not already so) an active stakeholder in the Western States Consortium, thereby supporting interstate exchange with participating states.

HIE Vendors are encouraged to provide supporting information about their current and future capabilities for implementing and operating interstate exchange support services as part of their RFP responses. Views regarding consent management and policy implementation are expected.

#### 3.1.2.13. OTHER STATE AND COMMERCIAL PROGRAM SUPPORT

NHIE is expecting to provide health information exchange services to a broad range of stakeholders in Nevada. As such, the HIE Vendor must be able to demonstrate tangible capabilities that will enable such services. Examples include:

- Advanced Directives: The Nevada Secretary of State has established a lockbox service for resident advance directives. It is expected that the NHIE will provide information services (e.g., record locator services) that will give providers easier access to the advance directives for their patients.
- Ryan White Program: The Nevada State Health Division utilizes a variety of information services as part of the State's Ryan White program (see Ryan White Comprehensive AIDS Resources Emergency (CARE) Act). The program requires both clinical data from providers of HIV/AIDS patients as well as additional situational and condition information. The access to and collection of such information is time consuming, expensive, and a burden on providers who are asked to deliver much of the needed information (currently through duplicate data entry). The HIE Vendor should be able to support the needed information exchange, as well as a portal development platform that will enable NHIE or the HIE Vendor to develop a user interface to capture unique program information and store that information in a highly secure NHIE repository.
- Patient Centered Medical Home: The NHIE will look to be a provider of health information to organizations implementing patient centered medical home programs (e.g., Medicaid,

commercial payers, ACOs, etc.). It is expected that the HIE Vendor's solution will provide health information exchange and portal services necessary to support such programs.

#### 3.1.2.14. ELIGIBILITY CHECKING

The HIE Vendor will implement and maintain an information service that enables a central access point for EHRs and practice management systems to retrieve insurance eligibility information (e.g., EDI transactions). This service would facilitate electronic eligibility checking and the fulfillment of the corresponding meaningful use criteria for the users and vendors of EHR systems. Eligibility checking capabilities should be augmented with care alerts to requesting providers indicating when patients may need recurring tests (e.g., retinal, foot check, etc.), immunizations, or vaccines. In concert, the same access point may be used to enable web-based access to eligibility information for those eligible providers as yet unable to take advantage of EDI transactions (primarily small physician practices).

The HIE Vendor should provide the following:

- Secure routing of eligibility requests to payers via 270/271 eligibility inquiry and route responses in real-time;
- Management and maintenance of an all-payer eligibility check service (e.g., providers can consistently maintain one request format from their EHR to the eligibility check service to multiple payers).

#### 3.1.2.15. PRIOR AUTHORIZATION ROUTING/CHECKING

The HIE Vendor shall route prior authorization data in a systematic and standardized format to multiple providers – enabling providers to utilize a single transaction type for Prior Authorization transactions across multiple payers.



### 3.1.3. CONSENT MANAGEMENT

The HIE Vendor will implement and maintain a robust set of Consent Management Services that enables patient/consumer directed restrictions to the flow of Individually Identified Health Information (IIHI) in accordance with applicable law and regulations, and as directed by NHIE.

These Patient Consent Services shall allow the State-wide HIE System and independent Nevada based HIEs to enforce privacy for patient medical data (i.e. Clinical Summaries). The foundation of the Patient Consent Services will use Basic Patient Privacy Consents (BPPC). BPPC provides a mechanism to record the patient's privacy consent(s) and a method for HIEs in Nevada to use to enforce appropriate privacy controls. The Patient Consent Services store privacy consent information in a Patient Defined Consent Repository.

NHIE expects the delivered patient consent management service shall provide user-managed flexibility in the implementation of current and future clinical data viewing constraints. The Consent Management service will need to utilize national standards for policy vocabulary services to ensure interoperability with other HIE networks. The HIE Vendor shall comply with the most recent guidance from the ONC, Office of Civil Rights (OCR), and all other federal agencies within 30 days of notice by either NHIE or the federal agency.

Nevada is an opt-in State; other than Medicaid beneficiaries, consumers/patients must proactively provide their consent to allow the sharing of Individually Identifiable Health Information (IIHI) electronically via the Nevada State-wide HIE Network (i.e., across all Certified Participants in the state including independent HIEs). The HIE Vendor must provide explanation for how opt-in consent will be maintained for Medicaid beneficiaries (e.g., Medicaid enrollment information will be accepted by the HIE Vendor solution to update opt-in status for new incoming beneficiaries and an outgoing beneficiaries).

#### 3.1.3.1. PATIENT CONSENT OPTIONS

The HIE Vendor shall provide a mechanism to acquire, store and manage patient consent information, including granular opt-in and opt-out options (and subsequent patient revocations) with respect to patient's record in whole or in part, as may be required based on the type of clinical data. The solution provided shall provide the capabilities required to implement consent policies for all of the following consent models:

- a. Opt-in no restrictions;
- b. Opt-in with restrictions based on individual provider, provider organization, and/or provider specialty;
- c. Opt-in with restrictions on segments of data (e.g., behavioral health, STDs, HIV/AIDS, etc.);
- d. Consent by default (e.g., Nevada Medicaid beneficiaries may not opt-out);
- e. Opt-out no exceptions (i.e., no consent);
- f. Opt-out with exceptions based on individual provider and/or provider organization;
- g. Opt-out with exceptions based on segments of data (e.g., personal health data entered by patient);

- h. Access to data in emergency situations by health care providers (break the glass);
- i. Restricted access to specially protected data according to state and federal law and regulations;
- j. Restricted sharing of health records with health plans as requested by patient that pays for treatment out of pocket and in full; and
- k. Custom consent models.

Individuals will have the option of changing their consent selections at any time, with the exception of Medicaid beneficiaries who will be considered to be opt-in.

#### 3.1.3.2. CONSENT MANAGEMENT SERVICES

The HIE Vendor must implement and maintain consent services that support a centralized model enabling consumers/patients to make their consent selections one time with NHIE and have those consent selections available to all Certified Participants in the Nevada State-wide HIE Network. These Consent Management services are expected to support interstate exchange as well.

The HIE Vendor shall:

- a. Support multiple consent policies simultaneously for transactions where multiple consent policies may apply;
- b. Provide system wide capability to restrict user access based on their roles to specifically-protected data according to state and federal law and regulations;
- c. Manage and update patient consents and disseminate to source systems as needed;
- d. Support consent management to be delegated, managed and configured at multiple levels: roles, groups, and identities;
- e. Provide a patient consent management system configured and maintained such that no further programming will be needed once the service is operational, unless material changes to Nevada consent laws and rules necessitate such a change or at the direction of NHIE;
- f. Provide Application Programming Interfaces (APIs) that allow for the Consent Management services to communicate with external patient portals or PHRs for consent coordination and management access multiple systems.

The HIE Vendor must indicate ability to support workflows and use cases, including support for consent that spans independent HIEs, the state, and others outside Nevada (e.g., Western States Consortium) via the eHealth Exchange Gateway and other exchange mechanisms.

#### 3.1.3.3. CONSENT VOCABULARY SERVICES

The selected HIE Vendor will implement and maintain a state-wide policy vocabulary capability that will enable discoverable patient consent elections, patient authorizations for information access as well as other patient/consumer preferences. This capability will utilize IHE Basic Patient Privacy Consents (BPPC) profile to implement consistent policies within the State of Nevada, the Western States Consortium, and other interstate exchanges. The capability must support use of policy vocabulary which include a “flag” indicating the presence of additional stored PHI, existing at a designated HIE or NHIE participant. The capability must also support consent vocabulary consisting of representations for

identified external eHealth Exchange gateway exchange partners including without limitation the SSA, VA, and other states.

### 3.1.4. PRIVACY & SECURITY SERVICES

#### 3.1.4.1. SECURITY STANDARDS

The HIE Vendor shall implement and maintain compliance with the privacy and security standards specified below, as the standards exist as of the Effective Date of the contract, and then as amended or updated throughout standards:

- a. The Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), Title XIII of the American Recovery and Reinvestment Act of 2009 (the Health Information Technology for Economic and Clinical Health Act, or "HITECH"), and the implementing regulations of HIPAA and HITECH. Implementing regulations are published as the Privacy of Individually Identifiable Health Information, Notification in the Case of Breach of Unsecured Protected Health Information, and the Security Standards for the Protection of Individually Identifiable Health Information, and are currently located at 45 C.F.R. Parts 160 and 164, Subparts A, C, D, and E. Collectively, these laws and implementing regulations are referred to as the HIPAA Privacy and Security Rules.
- b. Federal Information Processing Standard, FIPS-197
- c. Federal Information Processing Standard, FIPS-199
- d. Sections of the PCI Data Security Standards (PCI-DSS) that are relevant and consistent with the HIPAA Security Rule.
- e. National Institute of Standards and Technology (NIST) Special Publication SP800-88. Guidelines for Media Sanitization.
- f. Data Security Categorization Risk Level of "Moderate" or higher based on the FIPS-199 Federal Information Processing Standard.
- g. Emerging web service security standards including: OWASP, OAuth, and web application security consortium and maintain consistent compliance as they evolve and as new ones emerge.
- h. Compliance with State of Nevada security standards. <ADD LINK TO STATE WEBSITE>

#### **HIEAP Certification**

The HIE Vendor must complete at least a Health Information Exchange Accreditation Program (HIEAP) self-assessment (version 1.1, dated January 2012) prior to the rollout of query-based exchange. All items marked as "Mandatory" must be addressed. Additionally, all items in Section II, Section III, Section IV, and Section IX must be addressed. HIE Vendor will provide a written report of its self-assessment findings. If HIE Vendor is already HIEAP Certified or has completed the self-assessment within the last 6 months, proof of certification or documentation of those findings should be supplied as part of the response to this RFP. Information on HIEAP Certification from the Electronic Healthcare Network Accreditation Commission (EHNAC) can be found online at:

[http://www.ehnac.org/index.php?option=com\\_content&view=article&id=57&Itemid=14](http://www.ehnac.org/index.php?option=com_content&view=article&id=57&Itemid=14).

#### **NSTIC**

The HIE Vendor shall present preparedness to adopt NSTIC (National Strategy for Trusted Identities) as that standard becomes operational, and the steps it will take to ensure the Nevada State-wide HIE System user and authentication system is compatible with and remains current with NSTIC.

#### 3.1.4.2. SECURITY PLAN

- a. The HIE Vendor shall design, document and implement a security plan that addresses the requirements of the production environment and the compliance with state and federal laws, regulations, and NHIE privacy and security policies. As part of the bid response, the HIE Vendor shall provide examples of Security Plans.
- b. The HIE Vendor shall design, document, and implement corrective plans from external risk assessment and vulnerability testing and/or external HIPAA audit review that discusses threats, vulnerabilities and impacts.

#### 3.1.4.3. SYSTEM SECURITY REQUIREMENTS

The HIE Vendor must provide an HIE technology solution that at a minimum includes the following:

- a. Employ automated system monitoring to ensure service availability and to detect anomalous system behavior and service interruptions in the production environment.
- b. System automation to examine system and error logs at least daily to minimize and predict system problems and initiate appropriate action. As part of the bid response, the HIE Vendor shall provide documentation describing system monitoring.
- c. Each point of the IT development and implementation shall be hosted in separate environments. (Example, development, testing, UAT, production)
- d. Host the systems associated with the Nevada State-wide HIE System on dedicated hardware (e.g., not on a partitioned server), meaning no server is shared with any other client of HIE Vendor.
- e. Provide a technical architecture that ensures private and secure HIE using standards and specifications that support eHealth Exchange participants, independent HIEs located within the state of Nevada, HIEs located in other states, and with multiple EHR/EMR systems.
- f. Ensure protections against unauthorized third parties accessing user information or monitoring use of services are in place at all times, including security measures to protect against unauthorized access, such as:
  - Protecting data in transit through the use of network encryption via SSL/TLS;
  - Protecting data at rest through use of recommended encryption technologies and algorithms;
  - Providing the capability to restrict access to system components and functions to specific users or groups of users, at both an individual and organizational level.

#### 3.1.4.4. SECURITY SERVICES

- a. The HIE Vendor shall provide a role-based access control scheme based on the federal (ANSI) standard for RBAC.
- b. The HIE Vendor shall map and reconcile roles from multiple Certified Participants who have pre-existing role based access systems.
- c. The HIE Vendor shall manage user profiles including defining access to data types and security credentials.
- d. The HIE Vendor shall allow users to reset passwords and unlock locked accounts from a web portal interface.

- e. The HIE Vendor shall provide “break the glass functionality” based upon transaction condition, user role, and patient consent declarations. “Break glass” events will be logged with standard report generated daily and/or weekly for NHIE operation use.
- f. The HIE Vendor shall design, document and implement a provisioning approach and framework for user identification, authentication and authorization, including activation and de-activation.
- g. The HIE Vendor shall pass credentials for authentication and authorization from local EMR/EHR and/or Certified Participants to authenticate system access to web service transactions.
- h. The HIE Vendor shall support remote execution a query from a local EMR/EHR and/or Certified Participants system.
- i. The HIE Vendor shall restrict access to record and field levels of patient data to authorized users.
- j. The HIE Vendor shall send data that is de-identified or specific to allow public health and reporting purposes other than treatment even when there is a patient consent of Opt Out set for treatment.
- k. The HIE Vendor shall ensure non-repudiation as part of digital signature verification to present data from being altered, deleted or damaged during data exchange.
- l. The HIE Vendor shall ensure that all health information in transit and at rest is unusable, unreadable, or indecipherable to unauthorized individuals through use of a technology or methodology specified by the Secretary of the Federal Department of Health and Human Services in the guidance issued under section 13402 (h)(2) of the American Recovery and Reinvestment Act of 2009 (P.L. 111-5), or any update to that guidance.
- m. The HIE Vendor shall set automatic alerts to system administrators when a breach pattern or unauthorized use activity is detected, based on NHIE policies and procedures.
- n. The HIE Vendor shall provide and customize secure data retention and data retention schedules based on the nature of the data (including audit logs) in question, in accordance with NHIE policy, state, and federal laws and regulations.
- o. The HIE Vendor shall support interfacing with external authentication engine where identify authentication and authorization may be performed via a software as a service model.
- p. The HIE Vendor shall support “user exits” or a “pluggable authentication module” (PAM) to enable user transition between the HIE system and local Certified Participant or EHR systems that are authorized as third-party connections to the HIE.
- q. The HIE Vendor shall implement and support two-factor authentication.
- r. The HIE Vendor shall respond to Certified Participant opt out consent declaration and subsequent patient change of consent.
- s. In an opt-out consent process, the HIE Vendor shall filter patient data at display and in messages for purposes of treatment.
- t. The HIE Vendor shall design, document, implement and support secure web services oriented architecture to support account registration, user authentication, data transmission and retrieval, queries to specific databases.
- u. The HIE Vendor shall provide web services and portal services for providers and service consumers to interact via HIE.
- v. The HIE Vendor shall implement security for transport and messaging via web services.

- w. The HIE Vendor shall support and exchange security assertions and provisions in a vendor and platform neutral manner with other systems.
- x. The HIE Vendor shall define users, groups, resources, access control in a directory.
- y. The HIE Vendor shall document and define an identify provider authentication service for federated **identify** and sign-on across multiple existing systems.
- z. The HIE Vendor shall define and describe system use of an industry accepted authorization assertion service for single sign-on credentials. These single sign-on capabilities shall also have the capability to work with services that maintain patient context as part of the user interface workflow between the NHIE and other end user solutions.
- aa. The HIE Vendor shall track all access so that an accounting of disclosures report can be provided to the individual if requested by NHIE.
- bb. The HIE Vendor shall de-identify messages, data or reports of patient identifiable information.
- cc. The HIE Vendor shall restrict access to files on a record and field basis.
- dd. The HIE Vendor shall design, document and manage a plan for intrusion detection and prevention at the network perimeter and within system servers.
- ee. The HIE Vendor shall cleanly disable accounts with short notice.
- ff. The HIE Vendor shall set security controls.
- gg. The HIE Vendor shall support legacy protocols such as MLLP transmitted over a VPN tunnel.
- hh. The HIE Vendor shall provide Entity Owned Repositories or edge data services in support of Certified Participants who want and need them.

#### 3.1.4.5. HIPAA BUSINESS ASSOCIATE AGREEMENTS

The HIE Vendor, as a Business Associate, is required to have HIPAA Business Associate Agreements (BAAs) with NHIE. In turn, NHIE will have BAAs with Certified Participants that are HIPAA Covered Entities. The HIE Vendor shall ensure that any agent, including any subcontractor, to whom it provides PHI received from, or created or received by the HIE Vendor on behalf of a NHIE or a subsequent Covered Entity agrees to the same restrictions and conditions that apply to a Business Associate with respect to PHI. In the event that a Certified Participant is not a HIPAA Covered Entity, the HIE Vendor may be required to enter into a confidentiality agreement with such Participant that requires the HIE Vendor to protect the privacy and security of patient and beneficiary information. NHIE shall have the right to approve any and all BAAs, sub-BAAs, or any other confidentiality agreements developed by the HIE Vendor to be entered into with Nevada Certified Participants. In addition, the HIE Vendor may be required to sign a NHIE-approved participant agreement with each Nevada State-wide HIE Network Certified Participant.

#### 3.1.4.6. TRANSACTION LOGGING

The HIE Vendor shall implement and maintain a transaction logging approach throughout the Nevada State-wide HIE System that it provides and operates. The logging must comply with all applicable federal and state statutes and regulations, including special rules related to logging of PHI, and especially sensitive information subject to special rules including, without limitation, information regarding behavioral health, minors, HIV/AIDS and other communicable disease status, and genetic information under applicable state and federal law and regulations. The transaction log will track the origination and

destination of an information transaction and verify that the transaction was completed. In addition, logs should contain sufficient information to allow for unambiguous identification of patients; end-users and/or systems requesting information; and end-users and systems to which information is routed or delivered. Separate logs should be maintained for application services and system infrastructure event logging. Separate logs should also be maintained for user behavior such as state shared services security events and “break glass” access to PHI. The access should be controlled to at least these log classes individually so as to allow separation of responsibilities amongst different people.

#### 3.1.4.7. TRANSACTION MONITORING

The HIE Vendor shall deliver a technology solution that meets the defined metrics and auditing functions including the logging of all connections and transactions to the Nevada State-wide HIE System. This solution shall include the functions listed below:

- a. Maintenance of an audit trail of all data connections and transactions (add, change, delete) identifying the individual performing the transaction, access, the date and the time, and the original data and instances where changes were made. HIE Vendor’s auditing capability shall be compliant with the IHE Audit Trail and Node Authentication (ATNA) specification.
- b. Monitoring of key areas of the Nevada State-wide HIE System as defined and as requested by NHIE with emphasis, tracking, and reporting on specific HIE activities/transactions on a regular and on-going basis. The HIE Vendor shall provide reporting capabilities on all data access and transmission events.
- c. Tracking of the Nevada State-wide HIE System transaction statistics as the HIE Vendor continuously monitors the system with key alert thresholds that will prompt additional surveillance and/or intervention.
- d. Storing and retrieving all transactions executed through the Nevada State-wide HIE System across all components and solutions, including a methodology for estimating storage requirements as Participants are added to the Nevada State-wide HIE System.
- e. Reporting capabilities to execute pre-defined and ad hoc queries on all transactions within the Nevada State-wide HIE System.
- f. Current and planned capabilities for standard and specialized audit reports and/or on-line inquiries, including recommendations for and implementation of a process to establish specific data to be consolidated/presented that will facilitate effective auditing controls over the Nevada State-wide HIE System and its functions.
- g. Current and planned capabilities for standard and specialized audit reports and/or on-line inquiries, including recommendations for and implementation of a process to establish specific data to be consolidated/presented that will facilitate effective auditing controls over the implementation of security measures by Certified Participant systems, and the inspection by the HIE Vendor and or other vendor as directed by NHIE of audit trails of end user activity of the Nevada State-wide HIE System.

The HIE Vendor shall provide the following transaction logging abilities:

- a. Ability to document and implement all logging required by federal and state laws and regulations.



- b. Ability to configure levels of logging (production, testing, debugging).
- c. Ability to configure and aggregate logging outputs for monitoring and search.
- d. Ability to integrate logging and reporting with third-party tools to manage the multiple logs and search within logs.
- e. Ability to develop system transaction profiles and detect for deviations from standards profiles to monitor appropriate use of the system.
- f. Ability to support logging configuration on disparate transactions and system events as requirements from laws or other business processes that may require different audit requirements.

#### 3.1.4.8. AUDITS AND TESTING

NHIE requires that the HIE Vendor be subject to ongoing and regular audits and testing of its solution. At a minimum, the HIE Vendor will be subject to the following:

- a. An annual security audit, including a vulnerability assessment to be performed by NHIE or its designee. Upon request from NHIE, the HIE Vendor shall provide NHIE with reports regarding security testing.
- b. The HIE Vendor must have an annual SSAE 16 audit (effective June 15, 2011) covering the hosting services that are provided and submit a copy of the audit (along with the detailed field summary) to NHIE with its proposal to address any open audit findings. If the audit is not currently being performed, the HIE Vendor shall agree to perform the audit and submit the audit report and detailed summary with 4 months after execution of the Contract.
- c. The business objective of the audit is to provide a review of the security controls objective. The scope of the audit will be a review of the security controls of all technical platforms and applications related to the information system. This will provide the information needed to the Nevada providers that the State-wide HIE System is following a standard set of controls and service principles. As a result, the HIE Vendor shall provide two types of deliverables: (1) a detailed security controls report similar to a SOC 2 and (2) a summary letter of the detailed report or a SOC 3 report in which to provide evidence of the review without providing review details. All audit work is to ensure that the required security controls are implemented and followed.
- d. Responsible for any software compliance audit and fines for any software utilized in connection with the delivery of products or services by the HIE Vendor to or on behalf of the Nevada State-wide HIE System.
- e. Issue an annual report regarding the Nevada State-wide HIE System security audits and compliance activities in a format reasonably requested by NHIE.
- f. Provide on-demand reporting capabilities and general reports regarding the Nevada State-wide HIE System security privacy compliance.
- g. The HIE Vendor shall audit and log the network system/application and detailed user activity (including data available to the user, data viewed by user, data downloaded by user, data uploaded by Certified Participant, length of time data is viewable and all actions taken by user while in the system). Offer shall provide documentation describing the level of detail to which user activity is auditable.

- h. The HIE Vendor shall provide flexible audit report function (including on demand feature) and audit logging ability.
- i. The HIE Vendor shall provide for designated time frame reporting that is configurable according to policy on security audits and compliance activities to NHIE.
- j. Cost of all audits and testing shall be incurred by the HIE Vendor.
- k. The HIE Vendor shall provide documentation demonstrating the vendor's ability to respond to audit findings with a remediation plan.

#### 3.1.4.9. SECURITY BREACH MONITORING & NOTIFICATION

The HIE Vendor shall provide HIE system monitoring capabilities, including breach notification for inappropriate usage or penetration of the Nevada State-wide HIE System. The HIE Vendor shall be subject to Nevada's breach notification laws [\[add reference\]](#).

As part of the operations, the HIE Vendor shall provide its incident response process for NHIE evaluation after contract execution. The HIE Vendor shall report any "Incident", to NHIE as described in the Service Level Agreement (SLA) attached to the Contract.

- a. Security and Privacy Training and Documentation. The HIE Vendor's developed training for Certified Participants shall include training on the secure use of the Nevada State-wide HIE System as well as the process for promptly reporting to the HIE Vendor any suspected security incidents, unauthorized use of or access to the Nevada State-wide HIE System, and any unauthorized access, disclosure, loss, or destruction of information accessed, distributed or stored within the HIE technology solution (collectively referred to as "Incidents"). HIE Vendor must develop and maintain written documentation that demonstrates the HIE Vendor's ongoing compliance with all security and privacy requirements including, but not limited to, the applicable provisions of HIPAA Privacy and Security Rule, denial of service attacks, malware, web site defacement, etc. Upon NHIE's request, the HIE Vendor shall provide such documentation to NHIE at no additional cost.
- b. Investigation of Incidents. The HIE Vendor shall promptly review and investigate any reported or suspected Incidents, whether detected by or reported to the HIE Vendor. The HIE Vendor must provide notice (without PHI) to NHIE within the time period identified in the SLA of any such Incidents as well as the current status and results of the NHIE's investigation. Such notice to NHIE does not constitute notice to Participants. NHIE may require the HIE Vendor to contract with an independent entity acceptable to NHIE to provide guidance and oversight with respect to the investigation and handling of same.
- c. Notice and Remediation Costs. Without limiting the generality of the foregoing, the HIE Vendor shall notify NHIE and Certified Participants and shall be responsible for the reasonable costs associated with such notifications for the breach of Unsecured PHI (as defined by HIPAA) or any other breach or incident requiring notification to affected individuals or any governmental agency under any other state or federal law and/or unauthorized use, access, loss, disclosure or destruction of PHI or any Security Incident (as defined by HIPAA), or any equivalent use, disclosure, or incident with respect to those Participants that are not Covered Entities. To the extent breaches were caused by any act or omission of the HIE Vendor or its agents or subcontractors, the HIE Vendor shall also be responsible for:

- notifying affected individuals and any governmental agency and the reasonable costs associated with such notifications required by law or as deemed necessary by NHIE in its sole discretion; provided, however, that if a Participant chooses to provide notifications to the affected individuals or any governmental agency, the HIE Vendor shall reimburse the Participant for the reasonable costs of such notifications and
- all costs of remediation required by law or otherwise deemed necessary by NHIE in its sole discretion, including, but not limited to: (a) credit monitoring services and identity theft insurance, including protection for children, (b) credit restoration services for confirmed identity thefts, (b) reimbursement for security freezes and credit unfreezes, and (d) a dedicated call center to address individuals' questions and concerns.

The preceding obligations, as they may be modified at any time by NHIE in its sole discretion, shall be included in the NHIE-approved BAAs/confidentiality agreements between the HIE Vendor and Participants.

**<INSERT NEVADA STATUTE FOR DATA BREACH OR LINK TO THE INFORMATION>**

#### 3.1.4.10. eHEALTH EXCHANGE GOVERNANCE & TRUSTED EXCHANGE

The HIE Vendor shall provide services aligned to eHealth Exchange governance policies and standards.

### 3.1.5. IDENTITY MANAGEMENT & AUTHENTICATION

The HIE Vendor shall provide a comprehensive user and system authentication system within the Nevada State-wide HIE System that will support creation and maintenance of user IDs and access controls to various types of data based on individual and organizational roles. HIE Vendor's user and system ID and authentication system should provide the following, at a minimum:

- a. A mechanism to sign up and enroll users to access the Nevada State-wide HIE System so that each user has a unique identifier and that sufficient information has been collected to ensure that the user has a valid reason to have access as defined by NHIE.
- b. The ability to define users, groups, resources, and access control in the directories associated with the Nevada State-wide HIE System.
- c. Support multiple user types and corresponding levels of access to the Nevada State-wide HIE System.
- d. Capabilities to manage user profiles including defining access to specific services, functions and security credentials.
- e. System-side capability to restrict access to specially-protected data stored by the NHIE according to state and federal law (e.g., set the rules and roles for access to this type of information).
- f. Specific authentication/user credentialing mechanisms (minimum of two-factor authentication) used to provide the Nevada State-wide HIE System with reliable user identification and secure systems access controls, including audit trails.
- g. Assurance that once a user's status has changed that their Nevada State-wide HIE System access rights are immediately adjusted accordingly.
- h. A mechanism to pass on role-based security certificates or tokens together with any relevant auxiliary information to other services that may be needed to allow proxy access to the originating user or process including processes that may be hosted by Nevada independent HIEs external to the Nevada State-wide HIE System but still within its legal domain.
- i. Information regarding an approach to managing the on-going creation and maintenance of the Nevada State-wide HIE System user IDs and associated access controls.
- j. Procedural and technical process for allowing organizations (hospitals, practice groups, individual providers, etc.) to gain the appropriate access to the Nevada State-wide HIE System and its capabilities.
- k. "Break the glass" functionality based upon transaction condition, user role, and/or patient consent declarations.
- l. Functionality to disable individual and organizational accounts immediately and upon request by NHIE.
- m. Identification of "brute force" attacks and automatic disabling of accounts.
- n. A complete user provision and de-provisioning solution to support achievement of the Privacy and Security requirements.
- o. Support Certified Participants that have chosen to have their own user directory with their own unique method of authenticating the user with other identification systems who use NHIE as an authentication broker to perform authentication (federated authentication).
- p. Document and define ability to integrate with existing user directories and map existing roles – eHealth Exchange federated login model.

- q. Certify and register third-party identity requests (may be part of federated identity, e.g., Certified Participant already performs identity management and authentication).
- r. Support re-certification and re-identification renewal procedures.
- s. Support account retirement and deactivation requirements as determined by identity management policies and procedures.
- t. Support issuing and maintaining unique identifiers for organizations and tracking the organizational context and/or utilize external provider directories as referenced by the organization.
- u. Authenticate access based on data or transaction sensitivity – some datasets or transactions may require multi-factor authentication for access.
- v. Issue and manage public key certificates for secure transactions.
- w. Verify and validate system identity via public key certificates for secure transactions.
- x. Delegate or utilize third-party authentication services for specific transactions via an external trust and authentication framework.
- y. Accept authorization assertions as part of an existing transaction or payload from Certified Participant.

Additionally, the HIE Vendor shall provide the procedural and technical process for integrating local and regional HIE authentication systems with that of the Nevada State-wide HIE System.

### 3.1.6. AUTHORIZED USER DIRECTORY MANAGEMENT

The HIE Vendor shall construct and provide the tools and procedures necessary to manage a comprehensive HIE directory of authorized users containing the most up-to-date participant information, including NHIE participant, and/or user identification for use in secure communications of clinical data.

At the outset, a provider is described as anyone who provides medical or related services that can bill a participating payer for those services. Additionally, payers and public health or other similar and appropriate governmental agencies will be listed in the directory (as determined by NHIE).

- a. It may be possible that in the future, the NHIE and/or its designee will utilize the Nevada State-wide Authorized User Directory as a master source of provider information for use in its various internal systems requiring provider information. As a result, the technology solution shall be capable of exporting this information to external systems.
- b. The HIE Vendor shall describe its approach to develop and manage a comprehensive and accurate State-wide entity-level and individual-level Provider Directory. The provider shall be categorized into individual providers (including professional credentialing information and data provided by various sourced at the direction of NHIE) and organizational providers for the Nevada State-wide HIE System, distinguishing between functional and services. Individual provider entities can be associated with any number of organizational provider entities. The HIE Vendor shall provide the tools and procedures necessary to manage the NHIE Provider Directory to provide the most up-to-date provider information, including system addressing for use in secure communications of clinical data.
- c. The HIE Vendor shall assist NHIE in defining a core set of fields that are consistent with the Medicaid provider database as well as fields that are needed by local Nevada-based HIEs and other stakeholders (e.g., SSHIX, Department of Insurance, etc.).

#### 3.1.6.1. AUTHORIZED USER DIRECTORY DATA ELEMENTS

The HIE Vendor shall provide recommendations and reasoning for specific data elements to be included in the Nevada State-wide Provider Directory, including the expected source of each data element.

These data elements should include items viewable by the general public (i.e. non-authenticated users), viewable by authenticated users, and private to systems administrators and those persons designated and authorized to manage and update Provider information. The HIE Vendor should denote in its response which data elements fall under each category listed. NHIE shall have final approval of all authorized user directory data elements

#### 3.1.6.2. AUTHORIZED USER DIRECTORY DATA SOURCE INTEGRATION

The HIE Vendor shall provide documentation outlining their approach to integrating NHIE and/or State data sources – such as provider data from the **Nevada State Board of Medical Examiners**, Nevada Secretary of State, the Nevada Medicaid Management Information System (MMIS), etc. into the Nevada State-wide HIE Provider Directory, distinguishing between functionality and services.

- a. The HIE Vendor shall import authorized user information from various sources as identified by NHIE.

- b. The HIE Vendor shall perform complete set of authorized user provisioning and de-provisioning transactions such as automated workflow support for registering new end-users, including master provider data, and achievement of the Privacy and Security requirements.
- c. The HIE Vendor shall have a unique Clinician ID(s) for each clinician that is associated with established provider identifiers based on provider enrollment and provisioning.
- d. The NHIE or Certified Participant shall perform identify verification during initial sign-up.
- e. The HIE Vendor shall utilize NPI (National Provider Identifier) as the unique provider identification number (UPIN) in transactions.
- f. The HIE Vendor shall import Facility information from various sources (identified by NHIE) using a standard provider directory and demographic format (e.g. organization name, organization demographics) and to store the specific address related to a facility. Information type and sources will be based on Standards and Interoperability Framework guidance, specifications and technical workgroup analysis. <http://wiki.siframework.org>. If an entity has multiple systems to which data must be sent, the NPI will need a system number appended to it to accomplish uniqueness.
- g. The HIE Vendor shall cross reference with Provider Information and associate provider demographics from multiple sources thereby matching various provider identifies and sources to a common address in order to facilitate provider specific transactions for CCD exchange between existing systems.
- h. The HIE Vendor shall provide unique Facility ID(s) for each facility and update identifiers as needed.
- i. The HIE Vendor shall document and define a standard export of provider information in an industry accepted standard.
- j. The HIE Vendor shall capture organization demographics.
- k. The HIE Vendor shall register with a provider entity directory and assign specific individuals to a Certified Participant.
- l. The HIE Vendor shall maintain source, quality and transformation history of provider directory information as metadata.
- m. The HIE Vendor shall assign and relate specific provider identities to one or more entities.
- n. The HIE Vendor shall query or utilize external provider directories that are eHealth Exchange (NwHIN) compatible.
- o. The HIE Vendor shall validate imported information from external provider directory sources for format, structure and content.
- p. The HIE Vendor shall perform a robust search utilizing matching technology for producing quick, complete and accurate searches.

#### 3.1.6.3. DATA INTEGRITY

The HIE Vendor shall describe their approach to resolve discrepancies in the Nevada State-wide HIE Provider Data – when they occur – that are encountered when information from various sources for the same provider do not match, distinguishing between functionality and services.

The HIE Vendor shall describe their approach to support the ability for providers listed in the provider directory established in the Directed Exchange HIE product to exchange information with other eligible

and authorized providers, using the specifications defined by the Direct Project (<http://wiki.directproject.org>) and S&I Provider Directory framework (<http://wiki.siframework.org/Provider+Directories>).

#### 3.1.6.4. ACCESS TO AUTHORIZED USER DATA

The HIE Vendor shall describe their approach to providing read-only, system-to-system access to Nevada State-wide HIE Provider Directory as desired by various State of Nevada agencies, and permitted or approved by NHIE distinguishing between functionality and services.

- a. The HIE Vendor shall describe their approach to integrating data sources to establish and maintain provider data within the Nevada State-wide HIE Provider Directory. The HIE Vendor shall provide details regarding integration and maintain connectivity with provider information that is maintained within private, regional or service area HIEs and with neighboring and other states' or HISPs' Provider Directories.
- b. The HIE Vendor shall provide a solution that may make the Provider Directory data accessible to trusted external State agency systems via the IHE Healthcare Provider Directory (HPD) profile Provider Information Query transaction. The Provider Information Directory will respond to a Provider Information Query request from the approved entity (Provider Information Consumer). The Provider Information Query request includes search criteria for the provider and the type of information the Provider Information Consumer is request in the response. For those State agency systems that do not support the HPD profile, the HIE Vendor will work with NHIE to design a service by which the agencies can query the Provider Directory data. If there are data elements that are determined to be required by NHIE that the HIE Vendor's solution does not support, the HIE Vendor's data model shall be sufficiently flexible to easily allow for the inclusion of additional data elements. External data consumers include by are not limited to Electronic Medical Records (EMRs), Electronic Health Records (EHRs), Health Information Exchanges (HIEs) and Personal Health Records (PHRs) applications.

NHIE may determine that in addition to its use in the Nevada HIE functionality, it will utilize the Nevada HIE Provider Directory as a master source of provider information for use in its various internal and external systems requiring provider information.

#### 3.1.6.5. AUTHORIZED USER REGISTRATION – PROVIDERS

##### **General Registration and Credentialing Process**

The HIE Vendor shall provide services as the Nevada Registration Authority for Participants of Query-Based Exchange HIE services. NHIE reserves the right to utilize the Registration Authority services solicited as part of the Directed Exchange RFP services. HIE Vendor's Registration Authority Services must include, at a minimum:

- a. Collection of information required for organizational or individual identity verification (i.e., identity proofing)
- b. Validation or identity proofing of providers and organizations for the purposes of listing their information in the HIE Provider Directory and utilizing Nevada's Query-Based Exchange HIE Services.



- c. Processes, tools and support for tracking and managing the registration, identification verification, and enrollment processes for Query-Based Exchange HIE Services.
- d. Consultation and support services related to provider registration, identification verification, and enrollment processes for Query-Based Exchange HIE Services.
- e. NHIE will be responsible for final approval of providers and organizations for listing in the Provider Directory and utilization of Query-Based Exchange HIE Services.

#### **General Online Registration Process**

The HIE Vendor shall provide a process for web-based registration and enrollment of Query-Based Exchange HIE services Participants and supporting business processes. This will include at least processes, procedures, and tools necessary to populate and maintain a comprehensive entity-level and individual-level Provider Directory (including professional credentialing information) for all HIE Participants as approved by NHIE.

#### **Authorized User Credentialing**

The HIE Vendor shall provide the capability to track and report on credentialing information and status of HIE participants. Credentialing information may be accessed or pulled from existing systems of record. At a minimum, the Nevada State-wide HIE shall generate notifications when a credentialing lapse is identified.

#### **3.1.7. PROVIDER DIRECTORY SERVICES**

The HIE Vendor shall implement and maintain a comprehensive set of Provider Directory services for master data management of provider information necessary to support HIE services to Certified Participants. The Directory services also must be extensible to enable NHIE to implement a Provider Information system for future value-add services (e.g., provider-payer network, provider coverage, etc.).

At the outset, a provider is described as anyone who provides medical or related services that can bill a participating payer for those services. Additionally, payers and public health or other similar and appropriate governmental agencies will be listed in the directory (as determined by NHIE). The HIE Vendor shall assist NHIE in defining a core set of fields that are consistent with the Medicaid provider database as well as fields that are needed by local Nevada-based HIEs and other stakeholders.

In the near-term, the HIE Vendor shall implement, maintain, and manage provider directory capabilities, tools, and procedures necessary to manage the Nevada Provider Directory that will provide the most up-to-date provider information, including system addressing for use in secure communications of clinical data. The directory services will enable storage of NV DIRECT addresses, digital signatures, demographics, and system information, and are integrated into the provider/user authorization and authentication components of the solution. The HIE Vendor shall include the following as part of the Provider Directory Services:

- Entity-Level Provider Directory (ELPD): This component is an index of facilities with which the clinician (or other user) registered in Nevada has an affiliation/relationship. It processes additions, deletions, and updates to the facility index and processes requests for information from facilities index.
- Individual-Level Provider Directory (ILPD): This component is an index containing all relevant information on all registered clinicians within Nevada. It processes additions, deletions, and updates to relevant clinician information, and will process requests for relevant clinician

information. “Clinician” is broadly defined to include all certified and licensed clinicians (e.g., physicians, nurse practitioners, nurses, certified nursing assistants, medical assistants). The Master Clinician Index Service will be an open and authoritative state level provider directory accessible to all Certified Participants in the state.

- Entity-Individual Relationships: While the ELPD and ILPD appear to be separate directory services, NHIE expects the HIE Vendor to support the user interfaces, provider data load services, and data repository/indexing services necessary to capture and maintain the relationships between Entities and the Providers that work with/in them.
- Federated Access: The provider directory should be made available to others in the Nevada State-wide HIE Network to share provider information via web services, other exchange, and/or batch loads.
- Provider directory must be able to support the identification, authorization, and enforcement of individuals with the designated role of authorized to add new users to the NHIE (i.e., a “registration authority”).

In the long-term, the Provider Directory Services must be extensible to support added value services to be implemented in the future (see Section 3.1.7.2).

The HIE Vendor shall implement the tools and capabilities necessary for NHIE staff to effectively and efficiently support and maintain the provider directories (both facility and individual). At various points in time, it is anticipated that the Provider Directory will require manual intervention to assure its reliability as a dependable source of provider information. Individual providers and provider facilities will be identified within the patient health information messages exchanged between parties in the state-wide HIE system. As these messages flow to/through NHIE, the automated directory services will attempt to match identifiers to known providers in the existing NHIE provider directory. When there is a match, then the NHIE directory is updated to reflect a new index is now known for an existing provider.

When there is no match, there are several possible next step scenarios, one of which must be taken by NHIE, and all of which need to be fully supported by user interfaces implemented by the HIE Vendor:

- First, the mismatch may indicate that this is a new provider to be added to the directory. This will require manual intervention to build a complete entry in the provider directory (e.g., name, address, etc.).
- Second, the mismatch may indicate that the information is not sufficient to match to an existing provider entry. In this case, manual intervention will be needed to update the directory so the matching occurs properly.
- Third, the mismatch may indicate an improper provider identifier. This will require research by NHIE to determine cause of mismatch and escalation to source of record, or to the State. The Provider Directory solution shall provide users with an interface to view and revise Provider Directory content.

All revisions to the Provider Directories shall be logged in a repository implemented by the HIE Vendor. The Provider Directory Audit Log will be made available to NHIE users via standard reports and online user interface.

A separate element of provider index maintenance is the rules and algorithms that determine how provider and facility identities are resolved to determine whether or not to combine provider/facility

records or to maintain them as separate records. Over time, the nuances of the Nevada demographics will be discovered and used to tune these business rules and algorithms to increase effectiveness of the automated matching. It is expected that the initial rules will be defined conservatively to minimize the risk of incorrectly combining provider/facility records (a major health information disclosure risk concern). This will cause more manual intervention (as described above), but during the manual intervention process it will be important that NHIE observe patterns in matching that can be used to revise matching rules and improve automated matching within the provider indices. The HIE Vendor shall provide a user interface that facilitates the ongoing optimization of the Provider Directory.

#### 3.1.7.1. PROVIDER DIRECTORY DATA LOAD

The NHIE Vendor should support upload of content (new and updates) from a variety of sources including credentialing verification organizations, Medicaid, commercial payers, SSHIX, Drug Enforcement Agency (DEA), etc..

#### 3.1.7.2. EXTENSIBLE PROVIDER DIRECTORY SERVICES

Directory must be extensible in terms of the content that may be stored and retrieved. NHIE must have the ability to add new data elements to the data structures of the Provider Directory (e.g., credentialing data, DEA number, associated payer network(s), etc.).

#### 3.1.8. ENTERPRISE MASTER PATIENT INDEX MANAGEMENT

The HIE Vendor shall provide a set of EMPI services for the Nevada State-wide HIE System to uniquely identify patients interacting with the health care system in the state of Nevada. The EMPI must comply with applicable law and NHIE policy.

The HIE Vendor shall provide an approach to the development and maintenance of an EMPI service that supports both the Nevada State-wide HIE System and the Nevada State-wide HIE Network. The HIE Vendor shall propose, develop, and perform the approaches and process necessary to integrate various existing patient identification schemes already in use (Nevada MMIS, commercial payers, hospitals, individual providers, Service Area HIEs, etc).

For initial and ongoing population of the EMPI, the HIE Vendor shall support the load of patient data from various data sources. NHIE anticipates that the EMPI will initially use demographic data based on the Nevada Medicaid Recipient Database, data from other payers, as well as other eligibility systems.

##### 3.1.8.1. EMPI PATIENT IDENTIFIER AND INDIVIDUAL MATCHING

The HIE Vendor shall provide the automated tools, business rules engine, identity matching methodology, and specific procedures for matching, consolidating, resolving, and authenticating patient identities present in various data sources and health message participating in the Nevada State-wide HIE System/Network.

The HIE Vendor shall provide an automated capability and related services that shall:

- a. Identify individuals in multiple disparate systems with accuracy as part of an individual matching.
- b. Resolve duplicate individual identities in such a way so the individual record can still be searched for in underlying demographics. The solution should support and enable manual interventions when automated business rules are unable to resolve identity matching.

- c. Enable NHIE to load and retain relevant patient information from Certified Participants and other State-wide HIE Network users to be used in future searches to improve query performance.
- d. Enable a robust search utilizing matching capability for producing quick, complete and guaranteed extremely high accuracy searches.
- e. Preclude information sharing where consent has been withdrawn by the individual.
- f. Includes documentation specifying how updates have occurred (or will generally occur) including how frequent and any considerations that much be accommodated based on the proposed strategy.
- g. Implement an audit easily accessible audit trail that details how patient identifiers have been managed by this EMPI solution/service.
- h. Support both query and response processes in real-time and batch.
- i. Enable searches for patient encounters and data directly with EHR by supporting a set of secure patient identity services accessible by external systems.
- j. Return patient encounter data after query using a specified HL7 PDQ response.
- k. Combine multiple matching strategies into a single match scenario.
- l. Provide and utilize tools for configuring matching and ranking rules and tuning matching algorithm by type of data and source system.
- m. Implement standard reports or dashboard capabilities to document match confidence percentages.
- n. Provide automated and manual tools for linking/de-linking records to patient/individual.
- o. Provide automated tools that push un-linked records to patient's provider and/or NHIE operations for matching decisions.
- p. Implement the capabilities necessary for de-centralized management of patient indexes: support receipt, exchange and updates of patient data from external patient indexes.
- q. Implement the automated capabilities necessary to identify potential duplicate MRNs from a single system and notify the source system of data issues if the system is able to receive notifications.
- r. Provide a user interface and tools necessary to access and manage the "reject bin" when a match is not made or duplicates require further action
- s. Provide a solution that supports the use of additional patient identifiable criteria and information fields for matching and linking patients.
- t. Deliver an automated solution that accurately matches patients when there are aliases, flags, alerts, baby names, no SSN and other creative naming schema in matching and linking patients.
- u. The HIE Vendor shall limit the number of results on the return of information when the response set is large or the query is not specific enough.
- v. Implement the EMPI capabilities necessary to interact with external Master Person Indexes for query function and potential address update function.
- w. Configure and specify the appropriate search criteria as part of an implementation including a minimum number of identifiers that may include Name, DOB, gender, and other pertinent patient information.

- x. Configure the EMPI solution such that it will limit queries by preventing global queries, hash statements through support of specific query response parameters to limit information exposure risk.
- y. Implement an EMPI solution that supports the ability to locate a list of patient information documents as part of a document registry query and response transaction.
- z. Implement the capabilities necessary to enable one or more of the documents listed from a query be transferred to the requester's system.
- aa. Implement and configure the EMPI capabilities that will generate a unique patient identifier as part of the registration process to be disseminated to downstream systems.
- bb. Configure and implement the EMPI services necessary to update and manage a unique patient identifier scheme and send updates to downstream systems when an identifier changes.

#### 3.1.8.2. EMPI DATA ELEMENTS

The HIE Vendor shall establish the initial EMPI to store and maintain data elements (HIE Vendor recommended with NHIE approval) in the Nevada State-wide HIE EMPI. The HIE Vendor shall provide the data model that will be used to define the database and the data elements. The EMPI repository and data model must be extensible to NHIE shall have final approval of all EMPI directory data elements.

The HIE Vendor shall provide an implementation approach to presenting and validating the relationship of patient information to providers, payers and other participants interacting with the patient.

#### 3.1.8.3. EMPI DATA SYNCHRONIZATION

The HIE Vendor shall provide an implementation approach to establish and maintain synchronizations/cross-reference with various diverse user-facing systems (e.g., EHRs) that have their own patient identification schemes. The HIE Vendor's EMPI shall support the IHE Patient Identifier Cross Referencing profile (PIX) and the IHE Patient Demographic Query profile (PDQ).

- a. The HIE Vendor shall accept and respond to HL7 v2 and v3 PDQ (Patient Demographics) queries and respond with appropriate message.
- b. The HIE Vendor shall accept and respond to HL7 v2 and v3 PIX (Patient Identifier Cross-referencing) queries.
- c. The HIE Vendor shall accept and respond to HL7 v2 and v3 XDS (Cross Enterprise Document Sharing) requests.
- d. The HIE Vendor shall accept and respond to HL7 v3 XCPD (Cross Community Patient Discovery) requests to comply with IHE Requirements for Patient Identification.

#### 3.1.8.4. EMPI DATA CROSS REFERENCING (STATE LEVEL)

The HIE Vendor shall provide capabilities for the Nevada State-wide HIE System and Nevada State-wide HIE Network to cross-reference with patient identification methods employed by HIEs in the Western States Consortium, and with other states. The HIE Vendor's EMPI shall support the IHE Patient Identifier Cross Referencing profile (PIX) and the IHE Patient Demographic Query profile (PDQ), XCPD.

#### 3.1.8.5. EMPI DATA CROSS REFERENCING (NATIONAL LEVEL)

The HIE Vendor shall provide capabilities for the Nevada State-wide HIE System to synchronize/cross-reference with national identification systems, including but not limited to Nevada's connections to the

VA, SSA, CDC, etc.. The HIE Vendor's EMPI shall support the IHE Patient Identifier Cross Referencing profile (PIX), the IHE Patient Demographic Query profile (PDQ), or national level protocol as they evolve.

#### 3.1.8.6. PATIENT INFORMATION CONTAINERS FOR CERTIFIED PARTICIPANTS

The HIE Vendor shall provide a description of capabilities for Nevada state agencies, providers, and payers to create containers of other information pertinent to specific individuals (e.g., patients, beneficiaries, consumers) and to allow these entities to populate and maintain these containers as well as making these containers available via new and existing interfaces. The containers may include disease registries, population health analysis, quality monitoring and other population-based or care management health information services.

### 3.1.9. RECORD LOCATOR SERVICE (RLS)

The HIE Vendor shall provide an RLS that allows users of the Nevada State-wide HIE to query the location of all clinical information associated with a specific patient independent of the independent HIE, Certified Participant, or other HIE participants that possess the data, as permitted by NHIE policy and applicable law. The RLS should provide at least the following in response to a query: Patient Name, demographics, provider name, encounter date(s), encounter location(s), and other identifiers for future access to patient information

- a. The HIE Vendor shall identify patients in multiple disparate systems (e.g., spanning HIEs within the Nevada State-wide HIE Network) with accuracy as part of a patient matching.
- b. The HIE Vendor shall resolve duplicate patient identities.
- c. The HIE Vendor shall load and retain relevant patient information from Certified Participants to be used in future searches to improve query performance.
- d. The HIE Vendor shall perform a robust search utilizing matching technology for producing quick, complete and guaranteed extremely high accuracy searches.
- e. The HIE Vendor shall exclude information where consent has been withdrawn by the patient.
- f. The HIE Vendor shall identify how updates have occurred (or will generally occur) including how frequent and any considerations that much be accommodated based on the proposed strategy.
- g. The HIE Vendor shall support both query and response processes in real-time and batch.

#### 3.1.9.1. RLS APPLICATION INTEROPERABILITY

The HIE Vendor shall provide an RLS using the Nevada State-wide HIE MPI and Provider Directory/Index, as clinical encounters occur and health records are created/expanded.

#### 3.1.9.2. RLS APPLICATION RETRIEVAL TIME - MINIMUMS

The HIE Vendor shall provide and maintain an acceptable retrieval time (4 seconds with a standard deviation of 2 seconds for at least 95% of transactions) in response to a Nevada State-wide HIE System query for patient information, including factors (i.e., level of disbursement of patient data across multiple systems, number of simultaneous requests to the HIE, etc.) that will impact the speed of presentation of clinical information to an authorized requestor.

#### 3.1.9.3. RLS APPLICATION STANDARDS AND INTERFACES

The HIE Vendor shall provide recommendations for standards and interfaces to be applied to all participating member systems in the Nevada State-wide HIE System and Network with respect to participant storage of and access to all Nevada State-wide HIE patient information.

### 3.1.10. HIE DATA SERVICES

#### 3.1.10.1. CLINICAL DATA REPOSITORY

The HIE Vendor shall provide, implement and maintain clinical data repository that will be used to gather data from federated sources such as entity owned repositories or other systems as necessary and then filters, de-duplicates and presents it in a patient centric view such as a CCD.

The HIE Vendor shall provide an approach to providing functionality within the Nevada State-wide HIE System and Network allowing for the secure storage of clinical data in a standard and **anonymized** format as is necessary for the routing of such data between public health entities and other HIE participants.

#### 3.1.10.2. CLINICAL DATA REPORTING

The HIE Vendor shall provide an approach to identify clinical information destined for delivery to county, state and Federal public health entities and how this data will be routed to those entities. Implementation of the approach shall be at the direction of NHIE and in accordance with State and Federal law.

- a. The HIE Vendor shall provide a security route clinical data to analytical and quality aggregating/reporting organizations.
- b. The HIE Vendor shall **pseudonymize** PHI for aggregation. HIE Vendor shall be required to publish a guide as to how this is accomplished.
- c. The HIE Vendor shall aggregate and perform analytics and reporting based on underlying CCDs or accessible information via the HIE.
- d. The HIE Vendor shall connected source systems to utilize the HIE to perform quality reporting activities based on clinical information that is accessible via the HIE.

#### 3.1.10.3. EVALUATION PLAN SUPPORT

As part of the Cooperative Funding Agreement, the NHIE is required to conduct an annual state wide program evaluation, beginning May 2013. The evaluation will give the Nevada Department of Health and Human Services (DHHS) and the Office of the National Coordinator (ONC) more insight on successful approaches and strategies to facilitate and expand health information exchange. DHHS and NHIE may assign a third party to conduct the evaluation, but will required the HIE Vendor to support the requirement by providing access to necessary information about the HIE System performance.

The HIE Vendor shall incorporate all necessary data analysis and reporting solution components to enable the required evaluation planning and reporting. The Evaluation Plan detailed in the Nevada HIT Strategic and Operations Plan (SOP) describes the evaluation aims, approach and methodology to conduct such an evaluation submitted to ONC in June, 2012 and approved in December, 2012.

The goal of the evaluation plan is to gain insight to the NHIE performance to learn what approaches and strategies have been successful and how they can be used to expand health information exchange over time. This insight will be discovered through the collection of qualitative and quantitative data on:

1. Performance measures in each of the program priority areas (as noted above);
2. Assessments of NHIE's key strategies and approaches to determine how each contributed to achieving the priority areas objectives, including lessons learned; and
3. Conditions that supported and/or hindered implementations of those strategies.



AIM	Goal	Specific Research Questions
<b>I. Performance in priority areas</b>	Analyze HIE performance in each of the key priority areas.	<b>Research Question 1.1:</b> How has HIE performance in priority areas progressed against baseline 2010 HIT Assessment (if available) <b>Research Question 1.2:</b> What part of increase in HIE performance in priority areas can be credited to the NHIE?
<b>II. Stakeholder/engagement and outreach</b>	Identify the approaches and strategies for stakeholders that encouraged HIE.	<b>Research Question 2.1:</b> Which of the approaches were critical in increasing adoption of HIE? <b>Research Question 2.2:</b> What is the current status of adoption (i.e. providers, labs, pharmacies and patients) and usage?
<b>III. Feedback and continuous improvement</b>	Identify conditions that supported and hindered implementations of those strategies to continuously refine and improve NHIE's strategy.	<b>Research Question 3.1:</b> What conditions (e.g. policies, incentive payments, leadership, and regulations) have been critical to increase HIT adoption and what conditions prevented success (e.g. economic situation, priority, efforts vs benefits)? <b>Research Question 3.2:</b> What elements during outreach and implementation effort have been underestimated?

#### 3.1.10.4. HOSTED ENTITY-OWNED REPOSITORY

The Nevada State-wide HIE is a network of networks model and believes that a federated-hybrid architecture is the best way to meet everyone's needs. NHIE recognizes that some data source organizations may require assistance in storing their data in a solution component where it can be made available in a federated model. Some systems will not be able to respond to an inbound query, but will be accustomed to pushing data to destinations. The Certified Participants will need a destination that they own and control to which they can push their data and manage the sharing of it.

Under this arrangement, the HIE Vendor shall enable the Nevada State-wide HIE System to be provide a technical service, that includes the technical infrastructure and support service. The provider retains complete legal control of the data and is provided a management interface to execute that control as well as an optional help desk function for those not able to use the management interface. This environment would keep provider data absolutely separate at rest and would aggregate it only when it is queried. Solutions that aggregate and deliver are suitable, but solutions that aggregate and store data are not acceptable. At the data provider's requests and only if federation is not practical, the HIE Vendor shall provide a secure and separate repository for the Certified Participant to store their data and manage the sharing of it. The Certified Participant will enter into a contract securing their ownership and control, and alleviating concerns about centralization.

Although the Nevada State-wide HIE Network architecture is federated, some Certified Participants lack the ability and infrastructure to support this on their side, and acquiring this capability is expensive. These partners need a technical solution that they control to manage their sharing of data. It is envisioned that all or some of Certified Participant nodes will require an Entity-Owned repository. The Entity-Owned repositories will be provided by the HIE Vendor. The Certified Participant will pay for the cost of edge devices upon HIE Vendor's successful implementation of the respective node. A successful implementation is defined as the query, transport within the Nevada State-wide HIE System and query response of live clinical data from the connected node in the production environment to other Nevada HIE Participants.

The HIE Vendor shall provide an Edge Data Service or Entity-Owned Repository that meets the following requirements:

- a. The Certified Participant must maintain legal ownership of the data resident in the Entity-Owned Repository.
- b. These data shall not be comingled with other Certified Participants' data.
- c. The Certified Participant must be able to control and manage data in their repository.
- d. Actions taken by Certified Participants must be backed up with an SLA covering.

### 3.1.11. PORTAL SERVICES

#### 3.1.11.1. CLINICAL PORTAL SERVICES

The selected HIE Vendor will provide a presentation layer that is able to deliver data longitudinally and across multiple documents when related to the same patient will operate over the internet enabling authorized users to access patient health records. An associated online interface must enable users to configure the information they want to see in a way that they want to see it. The initial view of the patient record must be designed to enable care providers to rapidly understand the health conditions of the patient it represents and the timeline of care services they have received.

Access to patient data in those instances where there is no known patient-provider relationship and/or no explicit consent must be allowed via a "break glass" function. When "break glass" is used by an end-user, the HIE Vendor solution must log user and patient information and require that the end-user select a reason for "breaking the glass". This reason must also be stored as part of the audit log entry. HIE Vendor solution must provide a audit log reporting and monitoring function that enables NHIE to be alerted when "break glass" has been used as well as to conduct periodic status reports on the use of this function.

Access to sensitive data must be controlled based on consent selections by patients. In addition, sensitive data (e.g., behavioral health, STDs, HIV/Aids, etc.) must be held in "sealed envelopes" that require specific patient consent prior to accessing. All access must be in accordance with Federal and State laws, regulations, and policies.

Clinical Portal Services must also include integration to other EHR/EMR solution in support of single sign-on and patient context. The integration must be cost effective and implemented rapidly with NHIE Certified Participants.

#### 3.1.11.2. PORTAL EXTENSIBILITY

The HIE Vendor's Portal Services must include a platform that will provide NHIE with the ability to develop and/or configure additional portal services for future user interfaces thereby enabling additional HIE service offerings (e.g., Ryan White HIV/AIDS programs). In addition to viewing data, these future portal capabilities will need to support entry of newly defined data elements into the clinical data repository and/or a Hosted Entity Repository (e.g., health assessment information).

#### 3.1.11.3. CONSUMER PORTAL SERVICES

The HIE Vendor shall implement, maintain, and operate secure mechanisms for patients and authorized family care providers to access their clinical information. Such mechanisms include internet-based interfaces, secure email, and/or delivery/routing to the patient's preferred PHR. It is required that the HIE Vendor provide consumer/patient portal services that will give NHIE with the ability to enable providers to meet Meaningful Use Stage 2 objectives and measures. Interfaces and transactions shall be based on existing protocols and standards.

The HIE Vendor Consumer Portal Services shall be established such that the service can be made available as a NHIE offering for providers who want to grant their patients with access to their electronic health record. Access includes, but is not limited to, the following:

1. Provider sends a clinical summary of an office visit to the patient/caregiver (via PHR and/or portal).

2. Provider sends reminder for preventive or follow-up care to the patient/caregiver (via PHR and/or portal).
3. Provide Advance Directives to requesting providers (via PHR and/or portal).

#### 3.1.11.4. PORTAL FEATURES

The HIE Vendor shall provide an HIE technology solution and services shall support the minimum requirements for the following web browsers (additional browser capabilities should be included in HIE Vendor responses):

- a. All supported versions of Microsoft Internet Explorer (Windows), with the exception of IE 6. All supported versions is defined here as versions being supported by Microsoft;
- b. All supported versions of Firefox (Windows, Mac OS X, Linux). All supported versions is defined here as versions supported by Mozilla under the Extended Support Release policy;
- c. Currently supported versions of Google Chrome (Windows, Mac OS X); and
- d. Safari 5 and later (Windows, Mac OS X).

The HIE Vendor shall provide a web-based Nevada State-wide HIE portal with the following features, at a minimum:

- a. Be capable of displaying NHIE or other NHIE designated branding
- b. Customizable user interface for NHIE or NHIE designee to manage look and feel as needed, including a content management system
- c. Administrative capability to disable accounts immediately
- d. Return receipt (acknowledgement) mailbox capability
- e. Referrals to other HIE Participants
- f. Single sign-on (SSO) functionality where applicable and determined by NHIE.

## 3.2. ENTERPRISE HIE SERVICES (OPTIONAL)

### INTRODUCTION NEEDED

NHIE is seeking HIE Vendors who are interested in working with NHIE to offer Enterprise HIE services to Nevada hospitals. The goal is to foster State-wide HIE System adoption through a lower cost of entry in terms of both initial software acquisition and HIE interface implementation.

#### 3.2.1. BUSINESS RELATIONSHIP

HIE Vendors are encouraged to propose their hospital Enterprise HIE service capabilities (to be delivered as hosted Software as a Service) as well as the preferred business arrangement for working with NHIE to support the hospital Enterprise HIE market (e.g., joint sales, joint operational support, call center services, training services, etc.). Provisional business arrangements and pricing models (e.g., NHIE revenue sharing models, NHIE costs, costs covered by HIE Vendor, etc.) should be included in the Pricing Proposal.

#### 3.2.2. CONCEPTUAL REQUIREMENTS

A successful Enterprise HIE service will enable a hospital organization to consolidate patient information from disparate hospital systems into a single view for use by hospital clinicians (e.g., emergency, in-patient, out-patient, lab, pharmacy, radiology, etc.), public reporting, and administrative services (e.g., billing, food services). The Enterprise HIE services, coupled with the NHIE services and the Nevada State-wide HIE Network, will be able to support improved care coordination amongst community providers as well as practices and specialists operating within a hospital organization (e.g., IDN).

In addition, the Enterprise HIE services should be able to support new or growing hospital services portfolio including outreach programs (e.g., lab, radiology, long term care support, etc.). These enabling services must enable physician ordering capabilities that are compatible with their care workflow and financial management requirements. To the extent that ACOs begin to operate in the State of Nevada, the Enterprise HIE services and the capabilities of NHIE must support the information needs of ACOs.

Enterprise HIE services offered by the HIE Vendor must include the ability to implement flexible data governance policies. Specifically, the HIE Vendor must enable the segmentation of different organization's governance rules/policies so they are able to operate independently from the State-wide HIE System governance rules and policies.

### 3.3. SYSTEM IMPLEMENTATION SERVICES

The HIE Vendor shall provide system implementation services which include:

- Solution Delivery – Solution projects that include requirements definition, design, installation, configuration, development, validation, and testing;
- Project Management – Planning, monitoring, controlling, and reporting of system implementation projects; and
- HIE Integration Services – Projects that result in the integration of Certified Participants (i.e., NHIE customers) into the HIE.

NHIE will contract for these services using a **Master Services Agreement** with overall terms and conditions and general service definitions. NHIE will use Work Orders to contract for specific projects during which the HIE Vendor will perform the services described in this section if this RFP.

It is anticipated that NHIE will issue an initial set of **Work Orders** which include the following (see **Appendices XX – YY** for initial definition of Word Orders including deliverables, scope of work, and timelines):

1. Core HIE Solution Implementation
  - Installation, Requirements Definition, Design, Configuration, and Testing/Validation of HIE Vendor software components ready for integration with NHIE's Certified Participants.
  - Populate Provider Directories with available data sources (e.g., medical association, Medicaid)
  - Populate Master Patient Index with available data sources (e.g., motor vehicle department, Medicaid, etc.)
2. WebIZ Integration (Nevada State Immunization Registry)
3. Ryan White Requirements Definition and Feasibility Study
4. Rural Hospital Integration (**to be confirmed / defined**)
5. Integration of Pathfinder Hospital (**to be confirmed / defined**)
6. Integration of Pathfinder Practices (**to be confirmed / defined**)
7. Integration of Independent HIE
8. HIE System Operations & Maintenance (3-5 year term)

#### 3.3.1. SOLUTION DELIVERY

The HIE Vendor solution delivery responsibilities shall include, without limitation:

- Installation, Configuration, and Integration: HIE Vendor shall install software package component(s) on the HIE Vendor's hosted platform, configure component(s) to meet NHIE requirements, and integrate components into a single HIE platform. To the extent the HIE Vendor utilizes solution components from other vendors, the HIE Vendor will perform all necessary system requirements analysis, design, integration, and implementation services to successfully integrate other vendor solutions into the NHIE platform. The HIE Vendor is responsible for all performance and quality of their subcontracted vendors and their respective solutions.

- Solution Validation and Testing Support: Solution validation and testing support. Includes rigorous test planning, test case designs, test data creation, test data management tools, unit/integration/ system/regression testing services, and documentation of all testing support. HIE Vendor will provide support and guidance in preparation for and during user/clinical acceptance testing.

The HIE Vendor shall perform System Delivery services in accordance with or alignment with industry standards, NHIE requirements, and Federal mandates including:

- State HIE Implementation Guidelines for Direct Security & Trust;
- ONC Program Information Notices (PINs) 001, 002, 003;
- ONC S&I Framework;
- IEEE 12207.1-1997 Standard for Information Technology, Software Lifecycle Processes;
- IEEE 828.1998 Software Configuration Management Plans;
- IEEE 830-1998 Software Requirements Specifications;
- IEEE 12207-2008 Software Lifecycle Processes
- IEEE 829-1998 Software Test Documentation;
- IEEE 1028-1997 Software Reviews;
- IEEE 1059-1993 Software V&V Plans;
- IEEE 1028-1997 Standard for Software Reviews

### 3.3.2. PROJECT MANAGEMENT

The management of NHIE projects is expected to be a shared responsibility between the selected HIE Vendor and the NHIE Project Manager, with final authority resting with NHIE. HIE Vendor must propose a detailed project management approach that follows PMBOK standards and approaches (Project Management Body of Knowledge, 4th Edition). Formats of all project reports (e.g., status, risk management, issue management) shall be in accordance with PMBOK.

#### 3.3.2.1. PROJECT MANAGEMENT DELIVERABLES & ACTIVITIES

The HIE Vendor shall prepare the following project management deliverables and all associated interim work products which will be delivered to NHIE according to the due dates defined in the project plans:

- Work Breakdown Structure (WBS). The HIE Vendor shall define the WBSs for inclusion in each Work Order prior to NHIE agreement to proceed.
- Project Plan. The HIE Vendor shall develop an initial project plans for each Work Order prior to NHIE agreement to proceed. Following the launch of a Work Order, the HIE Vendor shall update and maintain the project plans in agreement with NHIE. The project plan shall include both a summary timeline and a detailed work plan. The summary timeline should identify phases and stages of work as well as major milestones. The detailed project plan (using Microsoft Project 2007) must depict all project tasks with estimated start and completion dates, work products (i.e., interim deliverables) and deliverables, task dependencies, NHIE approvals, and assigned resources. This plan must also highlight the critical path to project completion. For purposes of the RFP response, assume a project start date of **May 1, 2013** with Core Solution

implementation completed by **September 30, 2013** (ready for integration with Certified Participants). The actual start date will be dependent upon the date of Contract execution. The HIE Vendor must propose both a summary timeline and a detailed work plan.

- Project Monitoring and Control: HIE Vendor shall monitor and report project progress to NHIE minimally every two weeks. In addition, the HIE Vendor shall establish and document all project controls that will ensure project milestones will be achieved within the planned timeframe and budget. Project status reporting (including planned work, completed work, upcoming work, resources, risks, issues, and financial elements) must be provided at least every two weeks with weekly reporting required for critical milestones and dependencies. HIE Vendor must propose its approach for project monitoring and control.
- Project Governance Structure and Responsibility Matrix/RACI Chart. HIE Vendor shall define and maintain the project organization structure as well as a responsibility matrix/RACI chart listing all major project activities along with who will be responsible. This chart must be updated monthly to reflect any and all changes to the project governance. The HIE Vendor will propose an initial project governance structure and RACI chart.
- Change Management. HIE Vendor shall establish and perform project change management processes. The HIE Vendor will develop a project (Work Order) Change Management Plan Template and a Change Request Form. The HIE Vendor will propose a project change management approach.
- Risk Management. HIE Vendor shall proactively manage the HIE solution delivery and operation risks (e.g., risk identification, mitigation planning, mitigation) along with a Risk Management Plan Template and Risk Log. The HIE Vendor will propose their risk management approach.
- Issue Management. HIE Vendor shall proactively identify and resolve project issues (e.g., identification, tracking, and resolution). As part of this issue management process, the HIE Vendor shall develop and maintain Issue Log. The HIE Vendor must propose their issue management approach.
- Communications Management. The HIE Vendor shall document and implement a project communications management approach. The approach must address the communications necessary to provide a feedback loop for evaluation and assessment of systems functionality and opportunities for improvement. The HIE Vendor must propose their issue management approach.
- Requirements Management. The HIE Vendor shall document and implement a pragmatic approach to capture and document Nevada State-wide HIE System requirements. NHIE requires the HIE Vendor works with NHIE and its stakeholder to determine and properly document its understanding of the NHIE requirements and seek clarification where necessary. The HIE Vendor must propose their requirements management approach.
- Annual Planning. To ensure that NHIE implementation projects (Work Orders) remains on schedule and accommodates the functional services required by NHIE, NHIE and the selected HIE Vendor will hold annual planning sessions. These sessions will be designed to review the previous year's work, outline lessons learned, and to further detail the Work Orders and project plans for the upcoming year. The sessions will also provide an opportunity for NHIE and the HIE



Vendor to align their respective service offering portfolios. In the proposal, HIE Vendors must describe their approach to these planning sessions, including timing, personnel required, and critical outcomes. The annual planning sessions will not preclude the ability to approach the implementation in an agile methodology.

#### 3.3.2.2. PROJECT GOVERNANCE STRUCTURE

HIE Vendors must propose their approach to project governance and include account team structure (i.e., account leadership, project team(s), hosting services, financial/billing, etc.). The project governance approach and team structure must reflect the teaming between NHIE and the HIE Vendor. All points of escalation must be described along with anticipated triggers for escalation. HIE Vendors must propose their approach to project governance as well as the account team structure and proposed project personnel.

#### 3.3.3. HIE INTEGRATION SERVICES

Following the successful implementation of the Core HIE Solution for the Nevada State-wide HIE system, the HIE Vendor shall work with NHIE to integrate Certified Participants with the HIE System. Integration efforts will utilize open interoperability standards (e.g., HL7, ICD-9/10, LOINC, XDM, XDR, S/MIME, SMTP, etc.) and follow interoperability profiles defined by IHE (Integrating the Health Enterprise).

##### 3.3.3.1. NHIE CERTIFIED PARTICIPANTS

The expected NHIE customers include, but are not limited to:

- State of Nevada DHHS Agencies
  - Health Care Financing and Policy (HCFP – Medicaid)
  - Mental Health and Developmental Services (MHDS)
  - State Health Division (SHD)
  - Aging and Disability Services (ADS)
  - Child and Family Services (CFS)
  - Welfare and Supportive Services (WSS)
- Nevada's four State and Local Public Health Departments
- Commercial/private HIEs (i.e., end-to-end integration of EHR to HIE to HIE to EHR)
- Federal health partners (e.g., Veteran Affairs, Indian Health Service, DoD, NIH, CDC, etc.)
- Health plans/payers (e.g., HMOs, PPOs, ERISAs and PEBP, etc.)
- Healthcare providers (e.g., physician practice and hospital EHRs, closed IDN HIEs, specialist EHRs, dentists, etc.)
- Accountable Care Organizations (ACOs)
- Patient consumer organizations
- Laboratories
- Radiology Centers
- Federally Qualified Health Centers
- Retail Clinics
- Telemedicine/Telemonitoring Service Providers and Devices

- Education and research entities (e.g., NSHE, Nevada Cancer Institute, Nevada State College, and Touro University, etc.)
- Others to be identified.

### 3.3.3.2. INTEGRATION WORK ORDER PROCESS

NHIE views interface development as a critical element of the services to be provided by the HIE Vendor. Regardless of the sending/receiving organization (“Certified Participant”), a Work Order will be developed and agreed by NHIE and the HIE Vendor. The anticipated process for Work Order development and integration implementation includes the following key requirements:

- HIE Vendor will define the pre-requisite information it will need to implement a fully functional interface between NHIE and NHIE participants. It is expected that the HIE Vendor will have one or more predefined templates that will be usable for different participant types (e.g., hospital EHR, HIE system, physician practice EMR/EHR, lab message, etc.) and different integration methods (e.g., tightly coupled HL7 messages, loosely coupled document sharing, etc.).
- Based on NHIE provided pre-requisite information, HIE Vendor will (at their cost) document the work to be performed in a Work Order and a detailed project plan for the implementation of the NHIE interface with the participant (i.e., project initiation through go-live in NHIE production environment). NHIE and the HIE Vendor will finalize and agree to the Work Order prior to work commencing. It should be noted that the HIE Vendor may be required to participate in preliminary conversations with the NHIE participant to facilitate proper capture of the pre-requisite information.
- Integration development, which may include multiple messages, will be performed collaboratively with NHIE and participant staff members in an efficient and iterative fashion. The goal is to minimize iterations on specification documentation during design, and focus on developing working interfaces that are properly documented after the working interface is developed. This approach accounts for the varied status of health system documentation and the variability in data messages that exist today.
- NHIE will not be delayed by HIE Vendor scheduling issues. The timeline for interface development will not be impacted by other client requirements the HIE Vendor may have. This may require dedicated personnel from the HIE Vendor.
- NHIE will have the ability to develop HIE interfaces without the services of the HIE Vendor.
- The selected HIE Vendor must have the ability to validate NHIE participants (including other HIEs) as passing NHIE compliance tests (which are expected to mirror the eHealth Exchange test packets).
- The selected HIE Vendor must be able to validate NHIE participants (including other HIEs) as passing NHIE interoperability tests (which are expected to mirror the eHealth Exchange interoperability tests).

The HIE Vendor must include the following as part of their proposal to NHIE:

- Approach and timeline to develop Integration Work Orders (a generic approach to be used for all NHIE Certified Participants);

- Approach and timeline for HIE interface development spanning requirements definition, data mapping, development/configuration, unit testing, integration testing, and acceptance testing. Approach must describe how different system environments (e.g., DEV, TEST, PROD) will be used and how interface is migrated across those environments.
- Description of how NHIE and Certified Participant staff are involved in the development process (e.g., tasks, roles, responsibilities, deliverables, work products, etc.);
- Approach to meet NHIE schedule for implementing Certified Participant interfaces. Specifically, when NHIE strikes an agreement with a Certified Participant, NHIE expects HIE Vendor to be available to implement the interface(s) as soon as possible. The approach should outline HIE Vendor's recommendations for the structure of Work Orders to address this requirement;
- Approach to minimize delays in interface implementation once effort is initiated;
- Approach to minimize interface defects (e.g., incorrect data exchange) at the time of initial implementation as well as during the ongoing operation of those interfaces. NHIE would expect to see the HIE Vendor's adoption of IEEE standards and ITIL Version 3 service management processes;
- Approach to address maintenance of interfaces which may be required as a result of system software upgrades in the HIE System or a Certified Participant's system;
- Approach to detecting and resolving interface defects when they occur following implementation; and
- Description of the unique aspects of the integration effort for each of the expected NHIE Customers (Certified Participants), see above list.

#### 3.3.3.3. NHIE INTEGRATION TRAINING

The HIE Vendor shall provide all training necessary to educate NHIE staff on the solution architecture and design; implementation approach; NHIE roles/responsibilities; and system development/testing tools.

The HIE Vendor shall also provide all training necessary to educate qualified NHIE staff in the HIE Vendor's tools, processes, and solutions so those staff are able to develop, configure, and implement interfaces between the HIE System and a Certified Participant's system.

For the proposal, the HIE Vendor must provide training plans and sample support materials for this training requirement. In addition, the HIE Vendor must provide its agreement that NHIE will (at its option) be able to develop interfaces without assistance or further costs from the HIE Vendor.

### 3.4. HOSTING SERVICES

The HIE Vendor shall host, operate, maintain, and support the Nevada State-wide HIE System on behalf of NHIE. In addition, the HIE Vendor shall establish and maintain a disaster recovery environment suitable to enable business continuity in the event of a disaster that impact the operational environments.

The HIE Vendor shall perform all IT service management using Information Technology Infrastructure Library (ITIL v3) process definition to manage the delivery of the services provided. This includes ensuring that all staff related to the delivery and hosting of the NHIE are at least ITIL v3 foundations certified – copies of ITIL v3 certificates must be provided to NHIE within six months of an employee's hire date. This requirement also applies to any sub-contractors hired by the selected HIE Vendor.

In addition, at least one of the assigned HIE Vendor team leads assigned to the NHIE account (for no less than 25% of available time) must have ITIL v3 Expert Certification.

The HIE Vendor proposal must describe the approach to be used in delivering the following capabilities in support of NHIE's operations and customer support.

#### 3.4.1. ARCHITECTURE AND SECURITY

The HIE Vendor shall provide Software as a Service (SaaS) model of services to establish and operate the Nevada State-wide HIE on behalf of NHIE. The HIE Vendor is required to design, develop and implement an architected solution that includes reasonable and appropriate security measures to protect against reasonably anticipated threats or vulnerabilities to the security of EPHI and other sensitive and confidential information. The security controls shall be based on systems and data containing a Data Security Categorization Risk Level of Moderate, as defined in the FIPS-199 Federal Standard. The HIE Vendor shall ensure that it and the architected solution meet HIPAA Security Standards and Requirements. In some circumstances, it will be necessary for the HIE Vendor to provide Entity-Owned Repository for Certified Participants who cannot support an inbound query. In this case, the HIE Vendor shall provide a technology solution that supports the Certified Participants control and need for separation of such data. The HIE Vendor shall create a System Security Plan that catalogs all of necessary controls.

#### 3.4.2. SCALABLE ENVIRONMENT

The HIE Vendor shall provide a scalable hardware and communications technology environment for the Nevada State-wide HIE System that will scale to meet the needs of the Nevada health community. The HIE Vendor shall utilize a load testing service at the volumes described in this section. As part of the bid response, the HIE Vendor shall provide evidence of their scalability capabilities and describe their plan to test scalability. The HIE Vendor shall document their capability for the infrastructure to be extensible, scalable, redundant, and resilient.

#### 3.4.3. SERVICE AVAILABILITY

The HIE Vendor shall guarantee 99.9% service availability (measured in 5 minute intervals on an annual basis and excluding maintenance downtime) for the hosted Nevada State-wide HIE System. This includes

the hosting of Nevada State-wide HIE systems with a Tier III equivalent facility or better. The HIE Vendor will provide regular reports to the appropriate contacts designated by NHIE.

- a. The HIE Vendor shall track and report on system uptime on daily and weekly basis. In the RFP response, the HIE Vendor shall provide example system uptime tracking reports.
- b. As part of the RFP response, the HIE Vendor shall provide a recent audit of data center operations by a third party vendor

#### 3.4.4. MAINTENANCE

The HIE Vendor shall have the ability to perform routine maintenance during the planned weekly maintenance period. Routine maintenance shall include, but is not limited to, server upgrades/patching, software upgrades/patching and hardware maintenance. In order to maintain system availability, the HIE Vendor is expected to have the capability to rollover to a backup site during maintenance periods.

#### 3.4.5. CHANGE MANAGEMENT

The entire solution shall be controlled via complete change management processes and archives that must include, without limitation, configuration of each component, all aspects of the database(s) except the application data which shall be archived and backed up, applications, interface configurations, custom software developed for this project, and test, production and other environments. Such configuration shall be sufficiently rigorous so that the entire system can be restored from the change management process. In addition, such change management shall be used for changes to each operational environment (such as test and production).

#### 3.4.6. SYSTEMS ENVIRONMENTS

HIE Vendor supplied hosting services shall include environments for development, testing, training/ demonstration, pre-production, and production. All platforms will remain synchronized with the Production environment such that migration of new software (e.g., Participant interfaces and other functionality) will avoid change control and change management issues. All environments will reside in the Continental United States. Minimum environments to be provided by the HIE Vendor include:

- Development—The development environment will be where all new solution development and software configuration will take place for NHIE. This includes the development and configuration of interfaces to NHIE participants.
- Testing—The testing environment will be used to validate newly developed and configure solutions. HIE Vendor will be accountable for establishing all technical elements to support testing of core HIE functionality, added-value services (future), and integration with participants in the Nevada State-wide HIE System (e.g., hospitals, RHIOs, independent HIEs, physician practices, labs, State agencies, etc.) which includes establishing working connectivity with participant data centers.
- Training/Demonstration—Production solution installed in an environment that will be used for training NHIE and Participant administrative personnel and end-users. Environment will also be used for demonstration purposes by NHIE personnel. The environment must include a sample set of patient data as well as tools that will enable NHIE personnel to reset that sample data set after training or demonstration events may have changed the original data set. As noted elsewhere in this RFP, the NHIE Vendor will make a demonstration environment available within two (2) weeks of contract signature). The demonstration

environment must consist of operational HIE user interfaces that can be used in meetings, conferences, and other demonstration situations to present the full capabilities of the Nevada State-wide HIE System. The environment must be populated with enough simulated patient data to be able to fully demonstrate the HIE capabilities as well as any other Value-added Services that the HIE Vendor recommends (e.g., EMR capabilities). The demonstration environment must be in place and accessible to NHIE staff within three (3) weeks of contract execution.

- Pre-production/Certification—Environment dedicated to certifying the clinical and technical integrity of newly added functionality and new Participant interfaces. This environment will be managed by the HIE Vendor as an exact replica of the Production environment including all technical elements. This environment will be used to validate one new capability at a time and only will be needed when multiple integration and development project are running concurrently.
- Production—The production environment(s) for the Nevada State-wide HIE System which will comply with all State and Federal laws, regulations, and policies as well as all requirements, policies, and services levels of NHIE.  
Production environments must be hosted in a data center that complies with all federal and state privacy and security laws and rules, including HIPAA/HITECH requirements, and must be run with the highest levels of internal controls and audits. Such an environment should be operating using the highest level of best practices for hosting sensitive information. Selected Vendor(s) must perform regular (minimally, annually) audits and security penetration as to be more fully specified in the contracts.  
All patient data will be hosted on servers based in the State of Nevada.
- Disaster Recovery & Business Continuity—The HIE Vendor will provide a hosted capability that facilitates system recovery and continuity of NHIE services in the situation where the primary hosted environment is negatively impacted by a disaster rendering the NHIE hosted environments to be inoperable. This will include at least one additional system environment that will reside in the Continental United States. The disaster recovery data center will be located on a separate power grid from the production environment and will be separated by a distance sufficient to avoid both Production and DR environments being impacted by a single disaster. All patient data will be hosted on servers based in the State of Nevada until such time as disaster requires temporary location of patient data in another State with patient privacy protection laws equal to or stronger than those of Nevada.
- "Sandbox"—For future development of value-add NHIE services, NHIE will eventually require a developmental "sandbox" environment, similar to the test or training environments, for use with other solution vendors partner testing; such an environment would be hosted with access to tools and configurations for simple administrative purposes. Such an environment would not contain PHI, or III (i.e., only synthetic data).

#### 3.4.7. NHIE OPERATIONS MANAGEMENT

The production hosted Nevada State-wide HIE System infrastructure will be operated by the HIE Vendor while reporting elements of the system will be operated by NHIE using HIE Vendor supplied tools. HIE Vendor infrastructure operations will be performed to meet a set of defined Service Level Agreements (SLAs) which have been defined in **Appendix xx**. These SLAs address topics such as planned/unplanned outages, interface uptime, user interface response times (e.g., clinical portal, patient portal), issue resolution, and NHIE participant satisfaction.

The HIE Vendor shall provide operations management for the Nevada HIE over the term of any resulting contract, including the following.

#### 3.4.7.1. FACILITIES SUPPORT/NETWORK OPERATIONS

The Nevada State-wide HIE data center shall be manned 24x7 with operations and security staff. Appropriate personnel shall be onsite during peak hours of usage and operation. During off-peak hours, staffing may be reduced as appropriate. Problem identification and resolution will be handled by onsite staff, in conjunction with remote or on-call personnel, as needed. A customer support center shall be available and staffed 24x7 with customer access via telephone, email and web. The HIE Vendor shall have access to dual-location data center facilities both within the state as the primary data center and in another state for failover and disaster recovery. The Nevada HIE solution shall include all hardware and software required pertaining to those facilities to support the Nevada HIE solution for all phases of deployment. The HIE Solution shall meet mutually agreed upon system availability, uptime and performance service level agreements (SLAs).

HIE Vendor's response to proposal must include sample SLAs for the following items:

- a. Core Systems
- b. Edge Servers
- c. Network Interfaces
- d. Telecommunications
- e. Customer Support Center (24/7/365)
- f. Ongoing Training
- g. Ongoing Knowledge & Data Management

#### 3.4.7.2. SYSTEMS MANAGEMENT

- a. The HIE Vendor shall maintain and support of all NHIE software, interfaces, codes sets, tables, business rules as governed by the change control and change management process. HIE Vendor shall utilize a service management framework such as ITIL v3 or equivalent framework to manage IT services and infrastructure.
- b. The HIE Vendor shall produce and maintain policies, procedures, and processes in place to ensure security and confidentiality of all data stored and transmitted by the NHIE Solution Nevada State-wide HIE. HIE Vendor shall provide copies of existing policies, procedures and process descriptions/flow diagrams as part of their bid response.
- c. The HIE Vendor shall define and document stress testing performed of systems prior to release to production.
- d. The HIE Vendor shall support penetration testing from external vendors
- e. The HIE Vendor shall produce a Systems Testing Plan. At a minimum test plans shall include following:
  - Test data and impact on integration testing prior to user acceptance testing (UAT).
  - User acceptance testing plans.
  - Specific test plans for consent management.

HIE Vendor's response to proposal must include:

- Examples of system testing plans.
- Copies of test planning documents and strategies.

- HIE Vendor provided documentation should demonstrate their ability to establish separate system testing (unit and integration), user acceptance testing, training and production environments.

#### 3.4.7.3. STORAGE MANAGEMENT

- Store Backed-Up Data: The HIE Vendor shall store backed-up data apart from production data center at a sufficient distance to prevent simultaneous loss of production and back of data stores.
- Back-Up Data Recovery: The HIE Vendor shall recover lost or deleted data from backup.
- Alternative Recovery Location: The HIE Vendor shall establish an alternative recovery location in the event of a significant interruption to the production system environment.
- HIE Data Storage: The HIE Vendor shall design, document, and implement responsibility for all HIE data storage, including online, near-line, archival, retention, and backups.

#### 3.4.7.4. PERFORMANCE MANAGEMENT

- Performance Utilization Measures: The HIE Vendor shall monitor servers for performance utilization measures, response, memory, disk space, bandwidth and uptime. Included in the bid response, the HIE Vendor shall provide documentation describing performance utilization measurement capabilities.
- Performance Benchmarks: The HIE Vendor shall document and demonstrate measurement of and system performance benchmarks against similar systems from other states or regions.
- Monitoring Capabilities: The HIE Vendor shall monitor network connections, devices, activity, database sizing, system response times, availability, utilization, and memory, and defect tracking. Included in the bid response, the HIE Vendor shall provide documentation describing monitoring capabilities.
- Video Surveillance: The HIE Vendor shall provide video surveillance of the vendor's data center at specific entry points to detect for intrusion or unusual system operator activity. Included in the bid response, the HIE Vendor shall provide documentation describing video surveillance monitoring capabilities.

#### 3.4.7.5. DISASTER RECOVERY AND BUSINESS CONTINUITY

- The HIE Vendor shall provide information regarding how the proposed Nevada State-wide HIE systems and data will be protected against single and multiple data center failures (such as the recent Amazon incident), what steps will be taken to restore data from damaged data centers and the timeframes involved, frequency of scheduled data center or centers, maintenance procedures and their impact on system performance and capacity, and, any other procedures and notifications such as hardware and software upgrades and how they will affect systems performance and/or uptime. HIE Vendor shall ensure that the Nevada State-wide HIE is protected against natural disasters, hardware and software failures, human error, and other contingencies that could interrupt services. HIE Vendor shall maintain a Business Continuity Plan (BCP) that includes a Disaster Recovery Plan. The BCP may be provided either as a service level agreement and/or as a deliverable. Upon contract award, the HIE Vendor shall supply any existing and its proposed HIPAA Security policies and procedures.
- The HIE Vendor shall produce a Disaster Recovery Plan as a deliverable,
- The HIE Vendor shall document, define and provide a test Business Continuity Plan annually and meet Recovery Time Objectives and Recovery Point Objectives.



- d. As part of the bid response, the HIE Vendor shall provide documentation demonstrating the vendor's ability to design, implement and document a Business Continuity Plan for the data center, systems and network.

#### 3.4.7.6. INCIDENT MANAGEMENT PROCESS

The HIE Vendor shall support incident reporting and management.

As part of the bid response, HIE Vendor shall provide examples of the following: Escalation policy; Emergency contact process; and Incident response process

#### 3.4.8. DATA OWNERSHIP

The HIE Vendor agrees that the HIE Vendor shall obtain no ownership rights with respect to any Nevada HIE Data or that of any of its Participants or other contracted parties and that the HIE Vendor shall not use any such data except as necessary to fulfill its obligations pursuant to the resulting contract. In the event of a dispute regarding what data is or is not the HIE Vendor's data, NHIE's decision on the matter shall be final and not subject to appeal. Prior to completion or termination of the contract and on a schedule determined by NHIE, the HIE Vendor must take all necessary measures to assure that all Nevada HIE data maintained in the hosted environment has been migrated exclusively to NHIE or its designee, the Certified Participant as appropriate depending upon who the owning entity is. The format of such extraction shall be in a nationally recognized standard format in current widespread use to be negotiated at such time that any extract is to be performed in a format determined by NHIE at no additional cost to NHIE. NHIE may periodically request an extract of all of its data or in part at any time and not just at contract termination.

After transfer of Nevada HIE data back to NHIE and/or migration of Nevada State-wide HIE data to a new or replacement system as instructed by NHIE, HIE Vendor agrees to purge NHIE's data that resides on its computer hardware or software by following the most current recommended guidelines as detailed in National Institute of Standards and Technology (NIST) Special Publication SP800-88 Guidelines for Media Sanitization. This purge process shall be followed for information designated with a Data Security Categorization Risk Level of "Moderate" or higher based on the FIPS-199 Federal Information Processing Standard.

The HIE Vendor shall provide the following information for all IT assets containing Nevada HIE data:

- a. The serial number of the IT asset, computer or other surplus electronic data processing equipment;
- b. The name, date, and signature of the person performing the overwriting process.

#### 3.4.9. SYSTEM AND DATA TRANSITION

##### 3.4.9.1. DATA TRANSITION

The HIE Vendor shall provide technical assistance transferring the Nevada State-wide HIE data to a new or replacement system. Following the expiration or termination of the Contract for any reason, the HIE Vendor shall ensure that NHIE has exclusive access to and control of the Nevada State-wide HIE data in a format reasonably acceptable to NHIE and at no additional cost to NHIE.

As mentioned elsewhere in this RFP, Data Transition includes migration of NV DIRECT user addresses, user credentials, saved messages, and all inbound messages.

#### 3.4.9.2. SERVICE TRANSITION EXPERIENCE

The HIE Vendor shall provide a mechanism to transition HIE operations support services to NHIE staff or designee in the event it is necessary as determined by NHIE.

#### 3.4.10. ADMINISTRATIVE SERVICES

##### 3.4.10.1. ADMINISTRATIVE PERSONNEL

The HIE Vendor shall provide a list of all Vendors' workers who have administrative privileges or can access the Nevada HIE. The HIE Vendor shall provide resumes of Vendor's data center staff to document professional experience. This list data center staff and their resumes shall be provided at regular intervals determined by NHIE and/or upon request by NHIE. The Vendor's employees and contacts that have administrative privileges or access must submit to and pass State of Nevada background checks before such privileges or access is granted. HIE Vendor shall assume the cost of background checks. HIE Vendor shall ensure that all workers used in the performance of the resulting contract shall not be from an offshore location.

##### 3.4.10.2. ADMINISTRATIVE PERSONNEL PROCEDURES

The HIE Vendor shall provide its documented approach to vet Vendor's Workers ("workers" shall include HIE Vendor's and any subcontractor's employees, designees, assignees, consultants, and independent contractors) who have administrative privileges or can access the Nevada State-wide HIE System and Network, including the background checks that are conducted, security training that personnel must undergo, and the follow-up monitoring and training that is performed. Establishing workforce clearance procedures that include background checks is a key element in addressing workforce security for this project. NHIE anticipates that this access will be role based and that individuals with greater access will undergo more stringent background review. The HIE Vendor's response to this RFP should include proposed recommendations regarding the frequency and extent of background checks to be performed on Workers that will provide services to the State as part of the HIE Vendor's security plan. NHIE reserves the right to require additional background checks as determined to be reasonably necessary to protect the interests of the State of Nevada and individuals and entities impacted by the HIE Vendor's provided services. As part of the bid response, the HIE Vendor shall provide copies of actual personnel procedures.

##### 3.4.10.3. SYSTEM ADMINISTRATIVE SERVICES

The HIE Vendor shall provide its documented approach to maintain logins, access and consent management for the Nevada HIE, distinguishing between functionality and services.

- a. The HIE Vendor shall document and implement network protection capabilities to detect and eliminate malicious software and/or unauthorized external connection attempts on network monitoring devices, servers, peripheral devices, and desktop workstations.

- b. The HIE Vendor shall track the system and system administrator activities as captured in system logs using an appropriate log management system or toolset that routinely removes the log messages to a separate, protected collection server.
- c. The HIE Vendor shall examine system and error logs daily to minimize and predict system problems and initiate appropriate action.
- d. The HIE Vendor shall provide oversight of operator logs and ensure that the logs are checked on a regular base and against the Operating procedures. As part of the bid response, the HIE Vendor shall provide a copy of the administrative service Operating procedures.
- e. The HIE Vendor shall provide non-critical system management, virtualization, and administrative operational and system administration controls are on a separate network from the production network that would contain Protected Health Information (PHI) to prevent unnecessary administrative access to PHI.
- f. The HIE Vendor shall provide system documentation protected from unauthorized access.
- g. The HIE Vendor shall provide network (where business partner's and/or third-parties need access to information system) segregated using perimeter security mechanisms.
- h. The HIE Vendor shall provide a technical infrastructure for interoperability and enabling Meaningful Use will confirm to all HHS adopted standards and certifications for HIE as well as industry accepted standards (e.g. HL7, X12, etc.)

#### 3.4.10.4. SOFTWARE UPGRADES

The HIE Vendor shall be responsible for all software upgrades, including identification, timing, testing and implementation.

- a. HIE Vendor shall provide a maintenance plan and approach regarding software and hardware (where applicable) upgrades, maintenance schedule, and defect correction process.
- b. HIE Vendor shall install upgrades to the software associated with the Nevada State-wide HIE as approved by NHIE.
- c. New versions of the HIE technology solution components that are issued by the HIE Vendor within the first Contract year (365 days following Effective Date) will be implemented as part of the Nevada HIE within 60 calendar days of release as upgrades at no additional cost to NHIE.
- d. In the instance of third-party, the HIE Vendor shall test and apply patches for third-party software products before release.

#### 3.4.11. DATA MANAGEMENT

##### 3.4.11.1. DATABASE ADMINISTRATION

The HIE Vendor shall provide its documented approach to administration and maintenance of secure databases, and shall specifically provide information regarding data security policies and procedures.

##### 3.4.11.2. DATA ENCRYPTION (PROTECTION OF PATIENT DATA REGARDING HIV/AIDS, BEHAVIORAL HEALTH, CHILDREN, ETC.)

- a. Experience in Data Encryption: The HIE Vendor shall provide documentation outlining its experience with encrypting server- based data and how effective its approach has proven in protecting data from unauthorized access.
- b. Data Storage Encryption Standards: The HIE Vendor shall provide a list and descriptions of encryption standards it supports for storing Nevada HIE data.

- c. Nevada HIE Data Encryption: The HIE Vendor shall provide recommendations and reasoning for designating specific Nevada HIE data for encryption. The HIE Vendor will encrypt any Nevada HIE data as instructed to do so by NHIE.

#### 3.4.12. DATA CENTER

##### 3.4.12.1. DATA CENTER LOCATION (NEVADA)

The HIE Vendor shall assure NHIE that no Nevada HIE data or transactions will ever involve data centers physically located outside of the United States.

The HIE Vendor proposal must detail what would be required to assure NHIE that one or more of the data centers used to host the Nevada HIE systems would be physically located with the State of Nevada.

##### 3.4.12.2. DATA CENTER FACILITIES

- a. The HIE Vendor shall provide a secure data center that meets industry-accepted physical parameters for data center operations including, raised floor, air conditioning, fire protection, conditioned power, and adequate floor space for the servers.
- b. The HIE Vendor shall locate services in a climate-controlled environment that meets industry standards including climate control, fire and security hazard detection, electrical needs, and physical security.
- c. The HIE Vendor shall assure NHIE that one or more of the data centers used to host the Nevada HIE systems is physically located with the state of Nevada. shall establish data center responsibilities to prevent any single administrator from taking control of all systems and networks.
- d. The HIE Vendor shall document and implement a plan for operations change management addressing systems, system tools, and servers.
- e. The HIE Vendor shall provide documentation demonstrating that the hosting facility utilizes a change management application process for infrastructure change management.
- f. The HIE Vendor shall provide documentation demonstrating that the hosting facility utilizes a change management application process for application development.
- g. As part of the bid response, the HIE Vendor shall provide proof and documentation that the vendor's hosting facility is SSAE 16 compliant/certified.

##### 3.4.13. HOSTING SERVICE LEVEL AGREEMENT (SLA)

As part of the RFP response, the HIE Vendor shall provide documentation describing HIE Vendor's ability to support the elements of an SLA between the Nevada HIE and its Participants that the HIE Vendor and/or NHIE sees as critical to satisfy the needs of the Nevada State-wide HIE System – distinguishing between functionality and services. In addition, the NHIE Vendor must provide recommended SLAs for the hosting services.

### 3.5. ADMINISTRATIVE & OPERATIONAL SUPPORT

#### 3.5.1. HIE PERFORMANCE MANAGEMENT

##### 3.5.1.1. HIE PERFORMANCE PLAN AND STANDARDS

The HIE Vendor shall provide recommendations and reasoning for adopting specific HIE performance standards.

- a. The HIE Vendor shall document and implement a system performance plan: performance metrics (both functional and infrastructure related metrics), levels, and maintenance activities.
- b. The HIE Vendor shall document and define ongoing performance testing to support capacity planning and demonstrated increased scale in test and production environments.

The HIE Vendor must provide sample performance metric and performance testing documentation as part of the proposal.

##### 3.5.1.2. HIE REPORTING CAPABILITIES

The HIE Vendor shall provide specific types of HIE reporting capabilities they have available to enable NHIE to monitor the performance and usage of the Nevada State-wide HIE System and report statistics to state and federal authorities as may be required, including monthly, quarterly, and annual operations summaries as requested by NHIE.

##### 3.5.1.3. HIE PERFORMANCE MANAGEMENT SLAS

- a. The HIE Vendor shall provide NHIE with a comprehensive SLA that fully describes the level of performance and allowable levels of down time associated with the HIE hosting service.

The HIE Vendor shall perform routine maintenance during the planned weekly maintenance period. Routine maintenance shall include, but is not limited to, server upgrades/patching, software upgrades/patching and hardware maintenance. In order to maintain system availability, the Solution Provider is expected to have the capability to rollover to a backup site during maintenance.

The HIE Vendor shall perform non-routine maintenance at a mutually agreeable time with two (2) weeks advance notice to NHIE.

The HIE Vendor shall handle emergency maintenance situations that may be required to bring down the system by giving, when possible, advance notice, before the system goes down for maintenance, to NHIE and its users. It is expected that the HIE Vendor will rollover to a backup site during any such emergency maintenance.

The HIE Vendor shall utilize alternative remote backup sites that are geographically separate and distinct from primary hosting facility.

- b. The HIE Vendor shall maintain reliable business operations without interruption or delay – 24x7.
- c. The HIE Vendor shall provide descriptions of the elements of the SLA between the HIE Vendor and NHIE that either or both entities see as critical to ensuring the correct functioning of the Nevada State-wide HIE System— distinguishing between types of functionality and services.

- d. The HIE Vendor shall provide services to Participants to simplify their ability to join the Nevada State-wide HIE System. The elements of these services will be documented with a Service Level Agreement. The HIE Vendor shall meet a threshold of processing no less than a specific number or percentage of providers (by type) to join the Nevada State-wide HIE registration requests received within 10 business days of receiving provider request.
- e. The HIE Vendor shall provide data stewardship SLA which includes any request from Participants providers regarding incorrect clinical data and/or patient demographic data (Example: EMPI synchronization). Included in scope are reports to NHIE depicting any potential Master Patient Index mismatches.

### 3.5.2. NEVADA HIE METRICS

The HIE Vendor shall implement, maintain, and operate the services necessary to support transaction, usage, and other relevant Nevada State-wide HIE information. Example information to be supported includes: HIE messaging statistics (e.g., by message type, by sender, by receiver, by time periods; patient consent statistics); HIE provider enrollment statistics; NV DIRECT usage statistics; NV DIRECT enrollment statistics; etc.

The HIE Vendor proposal must include a description of the ability to support transaction, usage, and other relevant Nevada State-wide HIE information.

### 3.5.3. TRAINING AND EDUCATION

Selected vendor must provide training and education to NHIE staff, and to designated development, operational and support staff at NHIE participant organizations (i.e., NHIE customers). The training and education requirements include all applicable topics related to the following:

- HIE solution architecture and design;
- Strategic direction for the HIE solution;
- HIE Vendor partner solution(s) and future partner strategy(s);
- HIE technical operations;
- HIE reporting tools; and
- NHIE staff will be fully trained in the NHIE participant on-boarding process including all development tools and technologies needed to develop, configure, validate, and implement interfaces between the State-wide HIE System and NHIE participants.

The HIE Vendor will also provide education and awareness programs as part of a user group community including webinars, newsletters, user group meetings, announcement conference calls, and other channels.

Finally, the HIE Vendor will be asked to provide periodic and ad hoc education to the NHIE leadership team on topics related to leading practices and/or education resource related to the state HIE market. For example, some states may be further along in their inclusion of value-add services or privacy/security policies where the HIE Vendor can highlight key elements for NHIE consideration and/or direct the NHIE team to other individuals that can provide key insights to NHIE thereby accelerating progress and mitigating potential risks.

Specific HIE Vendor requirements include:

- a. The HIE Vendor shall provide training to HIE Participants, NHIE staff, and NHIE-designated contractors in accordance with a NHIE-approved Training Plan.
- b. This Training Plan must include a training schedule, estimated number of trainees via each modality, Key Person(s) and other staff responsible for the work, and curriculum materials.
- c. The HIE Vendor shall update the Training Plan and delivery of training/re-training at least annually (for the duration of the contract) to address refinements to services, any additional services, and developments in HIE Query-Based Exchange services.
- d. Training may be offered as online support, phone and email support, on-site training, or any combination thereof. At a minimum, training topics must include:
  - o Nevada State-wide HIE Enrollment;
  - o HIE Services;
  - o Registration;
  - o Managing ILPD/ELPD entries;
  - o Updating ILPD/ELPD entries;
  - o Logging into the system; and
  - o Data transport
- e. The HIE Vendor shall provide the following:
  - o Hard copy and electronic versions of training materials.
  - o A training approach that will support initial training requirements.
  - o A training approach that will support ongoing training requirements.
  - o Proposal that includes web-based training modules.
  - o Proposal that include in-person training.
  - o Experience and options for courses and component training.
  - o Staff education to maintain the confidentiality of sensitive information.
- f. The HIE Vendor shall identify the following:
  - o Category of “students” that will need to be “trained” Curriculum tracks for “students” that will need to be “trained”
  - o Payer specific use of the State-wide HIE based on privacy restrictions regarding administrative uses
- g. As part of the bid response, HIE Vendor shall provide a Training Plan including proposals for staffing approach.

The HIE Vendor proposal must address each of the above requirements.

#### 3.5.4. HELP DESK AND TECHNICAL CUSTOMER SUPPORT

The HIE Vendor shall manage the state-level shared services and provide help desk and technical diagnostic services 24x7x365. Such services should have a defined escalation path, response times, ticketing system with tracking, and management reporting back to the NHIE.

Specific HIE Vendor requirements include:

- a. The HIE Vendor shall provide live technical support 24x7.
- b. The HIE Vendor shall provide a ticketing system that offers open and closed ticket reporting services.
- c. The HIE Vendor shall provide inbound caller support email satisfaction survey tools.

- d. The HIE Vendor shall provide a ticketing system that tracks call volume by issue to help pinpoint trouble areas.
- e. The HIE Vendor shall provide a ticketing system to track help desk statistics by engineer for ticket open time vs. time closed, knowledge, and resolution.
- f. The HIE Vendor shall provide a ticketing system that offers management dashboard access and reporting to track availability and key performance indicators.
- g. The HIE Vendor shall provide a ticketing system to provide “opt out” end user surveys.
- h. The HIE Vendor shall provide a ticketing system that allows for automatic scheduled progress reports.
- i. The HIE Vendor shall provide evidence of industry governing body certification and industry recognized certifications for help desk functions.
- j. The HIE Vendor shall provide multiple communication tools for end user support: phone, chat, email, video, instant messaging as part of a unified communication system.
- k. The HIE Vendor shall document, demonstrate and provide multi-tiered support staff based upon experience levels/certification.
- l. The HIE Vendor shall support the system to offer a knowledge base of common problems to end users.

### 3.5.5. HIE STAFFING SUPPORT

#### 3.5.5.1. STAFFING PLAN

The HIE Vendor shall document, deliver to NHIE, and use a methodology for estimating support staff required at different times of day, and key factors, such as the number of Nevada State-wide HIE users, participating providers, etc., which will impact the staffing levels required to provide the necessary support for the Nevada State-wide HIE. Please provide resumes of key staff members, including but not limited to Project Manager, Technical Lead, Account Manager, Legal and Privacy Officer, HIE Program Manager. NHIE understands that these are anticipated resources but not guaranteed.

#### 3.5.5.2. STAFF TRAINING & TRAINING MATERIALS

The HIE Vendor shall provide HIE staff support training as needed and at regular intervals for the duration of the contract, (web-based and classroom) for HIE operations, help desk, and technical support staff for all services provided.

The HIE Vendor shall provide staff procedures manuals and/or flowcharts used to ensure consistency and completeness of HIE operations, help desk, and technical support functions. The training materials shall be updated as necessary (such as system upgrades and changes in features/functionality and/or upon request by NHIE).

#### 3.5.5.3. CERTIFIED PARTICIPANT ORIENTATION AND TRAINING

The HIE Vendor shall provide a mechanism to provide HIE operations/support services with Certified Participants and HIE participants.

The HIE Vendor shall provide web-based training for Certified Participants, HIE Participants, and end user providers (including their staff) and present self-service tutorials for all types of HIE participants as determined by NHIE and for all services provided.



### 3.6. BUSINESS DEVELOPMENT SUPPORT

NHIE is looking for a HIE Vendor that is a willing partner in supporting the growth of participants connected directly into the State-wide HIE System. In 2013, NHIE will have no HIE platform to be used in demonstrating HIE capabilities to prospective participants (i.e., customers). This requirement seeks creative support from HIE Vendors in assisting NHIE to rapidly capture a strong customer base by early 2014.

In addition to ideas from HIE Vendors, NHIE is seeking HIE Vendor support of the following requirements:

- NHIE Demonstration Environment as described in the Hosting Services requirement.
- Demonstration Support: Until NHIE staff are trained and proficient in the demonstration of the HIE capabilities, the HIE Vendor is requested to provide support during planned meetings, conferences, and other demonstration settings. Support will be by phone unless otherwise agreed and requests for support will be provided with two weeks notices. While shorter notices may be requested, NHIE acknowledges that the HIE Vendor may not be able to support.

HIE Vendor proposals should detail the Business Development support the HIE Vendor is willing and able to provide to NHIE. In addition, proposals (Cost Proposal only) should describe the business arrangement by which the HIE Vendor will provide such support (e.g., risk reward basis).

### 3.7. OUTREACH SERVICES AND PROMOTIONAL MATERIALS

#### 3.7.1. OUTREACH EFFORT

The HIE Vendor shall provide detailed approach and work plan to conduct outreach promotions and direct training to organizations and individual providers as directed by NHIE and/or its partners.

As part of the bid response, the HIE Vendor shall outline number of training sessions by type (in-person, webinar, teleconference, recorded).

#### 3.7.2. BRANDED PROMOTIONAL MATERIALS

The HIE Vendor shall provide branded materials promoting the Nevada State-wide HIE to target audiences for the purposes of education about and engagement in the Nevada State-wide HIE as determined by NHIE or its designee.

#### 3.7.3. ONLINE PROMOTIONS

The HIE Vendor shall provide online content and promotional material targeting specific audiences advertising and marketing the Nevada State-wide HIE to be used in online outreach and marketing campaigns as determined by NHIE or its designee.

### 3.8. VALUE-ADDED HIE SOLUTIONS

NHIE's priority for developing State-wide HIE services is to meet both the immediate needs of providers to satisfy meaningful use requirements and the longer term transformative vision for its health care system, moving toward patient-centered models supportive of robust coordinated care. As part of this longer term vision, NHIE anticipates the need to expand its portfolio of services to include specialized information services, information exchanges, alerts, and analytics for personal and population health purposes.

While NHIE will be highly focused on implementing Core Services during the foreseeable future, it is possible that a near-term opportunity to meet a market demand may require the implementation and integration of a Value-added service into the Nevada State-wide HIE System. In such a situation, the HIE Vendor will be required to support the initiative. The initiative requirements and terms for delivery will be documented and agreed in a new Work Order under the contracted Master Services Agreement (MSA).

In recognition of these future Value-add Services, the HIE Vendor will be required to configure the Core Service implementation in such a way as to enable end-user.

The HIE Vendor proposal must confirm the vendor's willingness and ability to support Value-added HIE Solution implementation and describe the HIE Vendor's approach to delivering such support. The HIE Vendor is encouraged to provide its recommendations and suggestions for Value-added services and the phased introduction of those services to the Nevada health community. In addition, the HIE Vendor proposal (Cost Proposal only) should describe the business agreement for Value-add implementation services (e.g., risk reward models).

NHIE reserves the right to make a final determination on the selection and sequencing of hosted, State-wide service after further investigation of cost, complexity, and value.

Note that the Nevada State HIT Strategic and Operations Plan includes a section that outlines a number of potential Value-added services to be offered by NHIE following the implementation of Core Services.

## Exhibit A – Proposal Warranties

The HIE Vendor agrees that the following warranties are an essential part of proposal, and that without these warranties the terms of the RFP response and resulting contract(s) would be substantially different.

HIE Vendor warrants and agrees at all times during the procurement period, and thereafter pursuant to any resulting contract, to the following:

1. No appointed official or member of NHIE has or will benefit financially or materially from this procurement based on any action of HIE Vendor;
2. HIE Vendor has not contracted to provide similar services to a similarly situated customer on better terms and conditions, including price, than it is offering to NHIE, and shall not do so during the contract term;
3. Independent Price Determination:
  - 3.1. The costs proposed have been arrived at independently, without consultation, communication, or agreement for the purpose of restricting competition as to any matter relating to such process with any other organization or with any competitor; and
  - 3.2. Unless otherwise required by law, the costs quoted have not been knowingly disclosed by the Bidder on a prior basis directly or indirectly to any other organization or to any competitor; and
  - 3.3. No attempt has been made or will be made by the HIE Vendor to induce any other person or firm to submit or not to submit a proposal for the purpose of restricting competition; and
  - 3.4. The HIE Vendor did not directly participate in the RFP development process (other than during the public comment period), had no knowledge of the specific contents of the RFP in its final form prior to its issuance other than to the extent it was made publicly available by NHIE in draft format, and no member of the NHIE participated directly or indirectly in the HIE Vendor's proposal preparation other than via the NHIE public process.

HIE Vendor warrants and agrees, and will warrant in any resulting contract, that it will:

1. Facilitate the electronic exchange of health information consistent with privacy and security guidelines and policies adopted by NHIE in accordance with state and federal law and regulations;
2. Support Meaningful Use requirements (Stage 1, 2, and 3) to ensure that eligible providers can achieve federal HIE Meaningful Use requirements, such as clinical summary exchange;
3. **Work with the HIE Vendor to** identify strategies for delivering federal HIE requirements as they are defined through all federally defined stages of meaningful use requirements; and
4. Engage in electronic exchange of certain health care data compliant with NHIE specifications as currently contemplated in the State HIT Strategic and Operations Plan or as defined at a later date:
  - 4.1. Nationwide Health Information Network – eHealth Exchange;
  - 4.2. Nevada Medicaid Program;
  - 4.3. Nevada State and Local Public Health Agencies;
  - 4.4. Regional Extension Centers and other Health Information Technology Programs Funded through the American Recovery and Reinvestment Act; and
  - 4.5. Other Nevada independent HIOs, RHIOs, and HISPs.

To the extent that such capabilities are not currently contemplated, correlating change requests with appropriate fee payments may be negotiated between the NHIE and the HIE Vendor:

1. Facilitate the electronic exchange of health-related information consistent with the technical implementation specifications adopted by the NHIE in accordance with guidelines and standards adopted by the U.S. Department of Health and Human Services;
2. Participate in state-level audits and any audits required by the ONC, the Exchange or by other federal requirement or regulation to ensure appropriate data security and protection of personal health information shared through the local HIE;
3. Participate in the exchange of clinical data with unaffiliated HISPs, HIEs and others, including competitors, within appropriate legal and clinical parameters; and
4. Abide by any new program direction issued by the NHIE based on federal direction, legislative direction, or state priorities.

Appendix A – Work Order Requirements: Core HIE Solution Implementation (to be confirmed / defined)

Appendix B – Work Order Requirements: WebIZ Integration (Nevada State Immunization Registry) (to be confirmed / defined)

Appendix C – Work Order Requirements: Ryan White Requirements Definition and Feasibility Study (to be confirmed / defined)



Appendix D – Work Order Requirements: Rural Hospital Integration (to be confirmed / defined)

Appendix E – Work Order Requirements: Integration of Pathfinder Hospital (to be confirmed / defined)

Appendix F – Work Order Requirements: Integration of Pathfinder Practices (to be confirmed / defined)

Appendix G – Work Order Requirements: Integration of Independent HIE (to be confirmed / defined)

Appendix H – Work Order Requirements: HIE System Operations & Maintenance (3-5 year term) (to be confirmed / defined)

## Process Flow & Timeline: HIE System Acquisition

Task	Responsible	Date
1. For Technical Subcommittee with 5-7 key individuals who have the capacity to do the required work	NHIE	1/31/13
2. "Sources Sought" Notice issued to Public → Let the market know RFP is coming and that they will be invited to propose based on their credentials which will be requested the following week.	NHIE/OHIT	1/31/13
3. Draft RFP provided to the NHIE Technical Subcommittee for review and revisions	OHIT	2/1/13
4. Law firm engaged to review RFP for completeness and to prepare for contract negotiations	OHIT?	2/21/13
5. Technical Subcommittee Members work independently <ul style="list-style-type: none"> <li>Review draft RFP</li> <li>Detail changes to be made to RFP (Word document with Track Changes)</li> <li>Identify key criteria they would like to use in a down select of HIE Vendors</li> </ul>	NHIE Technical Subcommittee	2/1/13 to 2/7/13
6. Issue Request for Information (RFI). Vendors to submit Letters of Intent to Bid along with their HIE Credentials → Let market know that only 3-4 vendors will be invited to respond to the RFP → Let potential vendors know that there will be demonstrations scheduled for the week of March ???	NHIE/OHIT	2/4/13
7. NHIE Technical Subcommittee <u>Meeting</u> <ul style="list-style-type: none"> <li>Consolidate comments</li> <li>Agree to revisions to be incorporated in draft to be released to HIE Vendor Community</li> <li>Agree action plan to finalize RFP</li> <li>Define framework and guidelines for scoring and selecting 3-4 HIE Vendor Credentials</li> </ul>	NHIE Technical Subcommittee	2/7/13
8. Release draft NHIE RFP to HIE Vendor Community for their review and comment (no questions submitted to NHIE will be answered in this round)	NHIE	2/8/13
9. Vendor comments on draft NHIE RFP due to NHIE	HIE Vendors	2/15/13 (midnight PST)
10. Letter of Intent with Credentials Due to NHIE (required for consideration)	HIE Vendors	2/15/13 (midnight PST)

Task	Responsible	Date
11. Technical Subcommittee Members work independently <ul style="list-style-type: none"> <li>Review vendor comments and select those that are worth incorporating or discussing with rest of subcommittee</li> <li>Review and score HIE Vendor Credentials</li> </ul>	NHIE Technical Subcommittee	2/16/13 to 2/20/13
12. NHIE Technical Subcommittee <u>Meeting</u> <ul style="list-style-type: none"> <li>Discuss HIE Vendor Credentials and subcommittee member individual scorings</li> <li>Make down select to 3-4 HIE Vendors who will be invited to submit a RFP response</li> <li>Review and Consolidate Vendor Comments</li> <li>Agree to revisions to be incorporated in Final HIE RFP</li> <li>Agree action plan to finalize RFP</li> </ul>	NHIE Technical Subcommittee	2/21/13
13. Notify selected HIE Vendors and Invite them to demonstrate their solution and to ask questions about the RFP	NHIE	2/21/13
14. HIE Vendors submit questions for upcoming demonstration	Vendors	2/24/13 (5PM PST)
15. Finalize the RFP. The assigned Technical Committee Member(s) works independently and will make adjustments based on HIE Vendor questions as appropriate.	Assigned NHIE Technical Subcommittee member(s)	2/21/13 to 2/27/13
16. Prepare for Demonstration Sessions <ul style="list-style-type: none"> <li>Develop responses to Vendor questions.</li> <li>Develop scenarios NHIE would like to see demonstrated (e.g., Consent mgmt, Clinical portal user interface, Notifications, Immunization registry interface, etc.)</li> <li>Identify key HIE services that Vendor will need to describe in demo session (e.g., Consent mgmt, Patient EMPI, Provider Directory, Direct Messaging migration, eHealth Exchange, etc.)</li> </ul>	Assigned NHIE Technical Subcommittee member(s)	2/21/13 to 2/27/13
17. Call with NHIE Board <ul style="list-style-type: none"> <li>Review HIE Vendor down select decision</li> <li>Agree to release of RFP to selected HIE Vendors</li> </ul>	NHIE	2/27/13
18. RFP Released to Vendors	NHIE	2/28/13
19. Respond to Vendor Demonstration questions.	NHIE	2/28/13
20. Develop Scoring Framework and Guidelines <ul style="list-style-type: none"> <li>For demonstrations.</li> <li>For RFP.</li> </ul>	Assigned NHIE Technical Subcommittee member(s)	3/4/13 to 3/8/13

Task	Responsible	Date
21. Conduct Vendor Demonstrations and Q&A <ul style="list-style-type: none"> <li>• 3-4 hours of demonstrations &amp; presentations by HIE Vendor</li> <li>• 1-2 hours of Vendor asking questions about RFP</li> <li>• 1-2 hours of NHIE asking questions of Vendor</li> </ul>	NHIE to Coordinate	3/12/13 to 3/14/13 (Tue-Thu, one per day)
22.		
23. Answers to Vendor Questions published	NHIE	3/18/13
24. Written proposals submitted	Vendors	3/29/13 midnight PST
25. Review and Score RFP Responses <ul style="list-style-type: none"> <li>• Independent scoring</li> <li>• Group meetings to compare and consolidate scoring</li> <li>• Selection decision taken as a recommendation to the NHIE Board</li> </ul>	Assigned NHIE Technology Subcommittee member(s)	3/30/13 to 4/10/13
26. NHIE Board Meeting <ul style="list-style-type: none"> <li>• Review evaluation process and scorings</li> <li>• Discuss Technology Subcommittee recommendation for HIE Vendor selection</li> <li>• Board to agree to selection</li> </ul>	NHIE & NHIE Technology Subcommittee	4/11/13 or 4/12/13
27. Vendor Finalists selected-notified and invited to contract negotiations	NHIE	4/12/13
28. Vendor Negotiations	NHIE Staff & Legal counsel	4/15/13 to
29. Contract Signed	NHIE/Successful Bidder	5/10/13 or 5/17/13
30. Core Solution implemented-ready for Qualified Participant integration (includes testing and validations)	Vendor/NHIE	8/30/13
31. Implement and test integration of Certified Participants into NHIE system (to be named)	Vendor/NHIE/Hospitals	1/31/14