



# **Wisconsin State-Level Health Information Exchange Planning and Design Project**

Aggregated Stakeholder Asset Data Summary and Service  
Prioritization

October 20, 2009



## Revision History

REVISION HISTORY			
REVISION	DATE OF RELEASE	OWNER	SUMMARY OF CHANGES
First Draft	9/23/09	M. Kleinmann	Initial Draft
V1.1	9/30/09	M. Kleinmann	Revised version for State review
V1.2	10/5/09	M. Kleinmann	Revised version for State review
V1.3	10/13/09	M. Kleinmann	Revised version for State review
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V2.0	10/19/09	M. Kleinmann	Revised version for State review

## Approvals

NAME	ROLE	DATE
Denise Webb	Project Director	October 20, 2009



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## **1. INTRODUCTION**

### **1.1 Background**

As an extension to the work initiated by the Wisconsin eHealth Care Quality and Patient Safety Board, the Wisconsin Department of Health Services began work on a crucial project to plan and design statewide health information exchange (HIE) at a state-level. State-level refers to collective, collaborative efforts involving the public and private sectors to advance HIE efforts through:

- Statewide planning and implementation
- Governance, technology, policy, HIE services, business model/financing
- Addressing unique needs and characteristics of the inclusive statewide landscape
- Coordinating negotiated, consensus-based solutions for HIE implementation
- Supporting statewide health and health care improvement for all

The goals of this State-Level HIE (SLHIE) Planning and Design Project are to address the governance, functions, financing, and technical architecture of a statewide HIE. The first phase of the project will result in recommendations for a designated public-private state-level entity with broad stakeholder representation designed to assume a distinct state-level HIE governance role. Major activities undertaken in Phase 1 include:

- Conducting an environmental scan and stakeholder assessment to understand capabilities, interests, and health information exchange needs
- Identifying high priority services to be provided by a SLHIE
- Developing an inventory of existing assets in Wisconsin that may be leveraged to support the HIE
- Identifying and analyzing business options for a SLHIE governing entity—including the presentation of a recommendation

Phase 2 will focus on technology-related activities and will result in recommendations for technical plans and architecture, and a detailed implementation roadmap. Major activities to be undertaken in Phase 2 include:

- Institutionalizing a statewide HIE Operating Model (e.g. governance, legal entity, organizational structure, stakeholder input mechanisms)
- Defining and designing a statewide HIE technical architecture
- Identifying stakeholder-level value propositions
- Developing HIE use cases
- Defining and designing a sustainability model for a SLHIE
- Defining a HIE Business and Technical Migration Plan
- Conducting education and outreach with stakeholders



## **1.2 Objective**

The objectives of the Aggregated Stakeholder Asset Data Summary and Service Prioritization are twofold: (1) to generate an inventory of existing stakeholder assets and (2) to identify a prioritized set of HIE services. The asset data collected as part of this effort will be fully evaluated in downstream efforts to determine their role in supporting the statewide exchange of health information.

For this effort, an “asset” is classified as either functional (e.g., data sharing agreements, governance structure) or technical (e.g., master client index, registry), and is something that could be used as part of or in support of Wisconsin’s SLHIE and statewide exchange. A “service” is consumable and something Wisconsin’s SLHIE may provide to stakeholders. HIE technical services are categorized as either patient/population health-focused (e.g., medication management, results delivery, public health) or shared utility-focused (e.g., enterprise master patient index, record locator service).

This deliverable is not intended to be an educational document about HIEs; readers are presumed to have a general understanding of the concepts underlying HIE and HIT.

## **1.3 Scope**

The scope of the Aggregated Stakeholder Asset Data Summary and Service Prioritization covers two primary areas:

- **Assets** – Includes an aggregated list of Wisconsin state government’s and private health organizations’ functional/technical asset data as well as HIT asset data for Wisconsin hospitals and health systems.
- **Services** – Includes details on the identification, selection, prioritization, and logical sequencing of a limited number of HIE services. It also identifies the potential asset alignment with the selected services and the required services as identified in the Office of the National Coordinator’s (ONC) State HIE Cooperative Agreement Program (CAP) Funding Opportunity Announcement (FOA).

Asset inventory data and the prioritized set of services were evaluated together to assess what may be available within state government and private health organizations from a functional and technical perspective to support the development of Wisconsin’s SLHIE and statewide exchange. Preliminary observations pertaining to the assets and services are included as considerations in this deliverable and will provide direction for further analysis in Phase 2, as necessary.

Together, the aggregated stakeholder asset data and the prioritized HIE services serve as key inputs for the Business Options Analysis and Recommendations in the final



deliverable for Phase 1. Specifically, they will help drive the business architecture analysis, HIE service offerings, and business options analysis.

## **1.4 References**

The following sources were used complete this deliverable:

- Background documentation obtained from the Wisconsin eHealth Quality and Patient Safety Board, Department of Health Services, Office of the National Coordinator, American Health Information Management Association’s SL-HIE Consensus Project, and other stakeholders
- Stakeholder Assessment and Environmental Scan deliverable
- Results of SLHIE Planning and Design Project Steering Committee (“the Steering Committee”) and other stakeholder interviews including the various state agencies and targeted private health organizations
- Results of the HIE Capabilities Survey
- Results of the WI SLHIE state government and private Health organization asset inventory
- Results of the HIE Regional Summit Meetings
- Results of research conducted by the Duke Translational Medicine Institute
- ONC’s State HIE CAP FOA
- Survey questions and results from the Wisconsin Hospital Association
- Survey questions and results from the Rural Wisconsin Health Cooperative
- Survey questions from the American Public Human Services Association
- Technology information from KLAS Research

## **1.5 Acronyms**

AHIC	American Health Information Community
AHIMA	American Health Information Management Association
CAP	Cooperative Agreement Program
CPOE	Computerized Physician Order Entry
CIO	Chief Information Officer
DED	Deliverable Expectations Document
DHS	Department of Health Services (State of Wisconsin)
DOA	Department of Administration
DRL	Department of Regulation and Licensing
EHR	Electronic Health Record
EMR	Electronic Medical Record
ETF	Employee Trust Funds
FOA	Funding Opportunity Announcement
HIE	Health Information Exchange
HIRSP	Health Insurance Risk Sharing Plan



HIT	Health Information Technology
MCI	Master Client Index
MMIS	Medicaid Management Information System
MTA	Medical Trading Area
NeHC	National eHealth Collaborative
ONC	Office of the National Coordinator for Health Information Technology
PHIN	Public Health Information Network (State of Wisconsin)
RLS	Record Locator Service
RWHC	Rural Wisconsin Health Cooperative
SLHIE	State-Level Health Information Exchange
SOW	Statement of Work
WCHQ	Wisconsin Collaborative for Healthcare Quality
WHA	Wisconsin Hospital Association
WHIE	Wisconsin Health Information Exchange
WHIO	Wisconsin Health Information Organization
WI	Wisconsin, State of
WIR	Wisconsin Immunization Registry

## **2. METHODOLOGY**

To successfully prioritize the list of HIE services needed in Wisconsin, the project team used the results of the Stakeholder Assessment and Environmental Scan activities, the HIE guidance provided in the ONC's State HIE CAP FOA, and the information obtained through interviews with and surveys completed by government and private entities.

The project team conducted 18 high-level interviews over a 4-week period with the CIOs and administrators from 13 state government agencies, and the directors/managers of 5 private health organizations previously identified by DHS as having HIE-related initiatives underway.

The interviews were a vital step in the data collection process. The purpose of the interviews was to explore the functional and technical assets that currently exist within the organizations listed in Table 1. Prior to conducting the interviews, the HIE Capabilities Survey responses (noted in the Stakeholder Assessment and Environmental Scan deliverable) and notes from the Steering Committee interviews were assessed to narrow the focus of the discussion during the interviews to assets that could potentially be used as part of or in support of Wisconsin's SLHIE and statewide exchange. Interviewees answered a series of questions. The specific individuals involved in each interview, the questions, and detailed notes are included in Appendix A. After conducting the interviews, the project team initiated a thorough inventory of the technical assets within the state government agencies and the private health organizations using a survey instrument specifically designed for this purpose.



<b>Interview Date</b>	<b>Organization</b>
08/05/2009	DHS – Division of Enterprise Services
08/06/2009	DHS – Division of Public Health
08/10/2009	DHS – Division of Public Health
08/11/2009	Health Insurance Risk Sharing Plan
08/12/2009	DHS – Division of Enterprise Services
08/13/2009	Department of Children and Families
08/13/2009	Department of Regulation and Licensing
08/17/2009	Department of Administration
08/18/2009	Rural Wisconsin Health Cooperative
08/18/2009	DHS – Division of Quality Assurance (Provider regulation)
08/19/2009	DHS – Division of Disability Determination Bureau
08/19/2009	Wisconsin Health Information Exchange
08/19/2009	Wisconsin Collaborative for Healthcare Quality
08/20/2009	Wisconsin Health Information Organization
08/20/2009	DHS – Division of Health Care Access and Accountability
08/26/2009	Department of Employee Trust Funds
09/02/2009	Wisconsin Hospital Association

**Table 1. Interview dates and the 18 state government and private health entities interviewed.**

The information obtained from the interviews and surveys, in conjunction with feedback captured from the HIE Regional Summit Meetings and HIE Capabilities Survey conducted at the start of the State-Level HIE Planning and Design Project, guided service prioritization. Attendees at the Summit Meetings had identified and prioritized services they considered most important to their organizations. The HIE Capabilities Survey results addressed both the “patient/population health-focused” and “shared-utility” technical services most important to responding organizations in a statewide health information exchange. Understanding the existing environment and potential services are key requirements in the ONC’s State HIE CAP FOA. Therefore, the prioritization process also took into consideration the requirements and guidance provided in the FOA.

The project team also surveyed the health systems, hospitals, and small providers separately through an online HIT Asset Survey to determine the existing HIT assets within their organizations. DHS assisted with the development of this survey by providing various sources for input, including information from WHA and the RWHC.

## **2.1 HIT Asset Surveys**

Two separate surveys helped identify the public and private technical assets that could potentially be used as part of or in support of Wisconsin’s SLHIE and statewide HIE. Recognizing that technical assets within government and private health organizations are often very different from the technical assets within a health care provider setting, the project team developed a survey instrument specifically designed for the government and private health organizations to identify and inventory their technical



assets. Table 2 describes the technical asset inventory categories and the elements associated with each category included within the survey instrument sent to government and private health organizations.

Category	Elements	Description
<b>Application</b>	<ul style="list-style-type: none"> <li>Asset Name</li> <li>Description</li> </ul>	Description of the asset and information on how the asset could be leveraged in a statewide HIE
<b>Stakeholder</b>	<ul style="list-style-type: none"> <li>Owner</li> <li>Other Stakeholders</li> </ul>	Asset owner and names of additional stakeholders if an application is co-owned, majority owners, etc.
<b>Data Type</b>	<ul style="list-style-type: none"> <li>Information Areas</li> <li>Database</li> </ul>	Identification of the type of data stored in this asset (e.g., quality, demographics, lab results) and the database used on the backend (if applicable)
<b>Security</b>	<ul style="list-style-type: none"> <li>Security Technologies</li> <li>Access</li> </ul>	Identification of the security technology used by the asset (e.g., technology that supports authentication/ authorization, LDAP repository) and end-user types (e.g., doctors, patients, hospital administrators, county government)
<b>Technical Platform</b>	<ul style="list-style-type: none"> <li>Platform</li> <li>Technical Language</li> <li>Primary Software</li> <li>Other Software</li> <li>Hosting Location</li> </ul>	Identification of the platform (e.g., web, client server, database), computer language (e.g., Java, .NET), primary and other software used to support/run the application (e.g., WebSphere, Microsoft Access, Business Objects), and location (or vendor) where the application is maintained
<b>Interfaces</b>	<ul style="list-style-type: none"> <li>Interface Name</li> <li>Real-Time or Batch</li> <li>Information Sent/Received</li> <li>Transaction Volume</li> </ul>	Identification of what systems this asset interfaces with, manner in which data is sent or received to/from external systems, and the volume
<b>General</b>	<ul style="list-style-type: none"> <li>Functional</li> <li>Total Users</li> <li>Active Users</li> <li>Daily Transactions</li> <li>Future Plans (end of FY10 and beyond)</li> </ul>	Identification of any existing data sharing/user agreements or other business agreements, number of total and active users and daily transactions, and future plans for the application (e.g., growth of number of end users, plans for additional functionality/new modules, plans for replacement/end of life)

**Table 2. Description of state government and private health organization asset survey categories and elements provided to interviewees.**

To inventory and compile relevant asset information from health care provider organizations, the project team developed a separate online HIT Asset Survey. This survey was distributed to 161 organizations. These organizations originally received 3 weeks to complete the survey. To encourage participation and increase the response rate, stakeholders received additional calls and emails. Table 3 provides details pertaining to the specific dates and follow-up activities for the online HIT Asset Survey.

Date	Task
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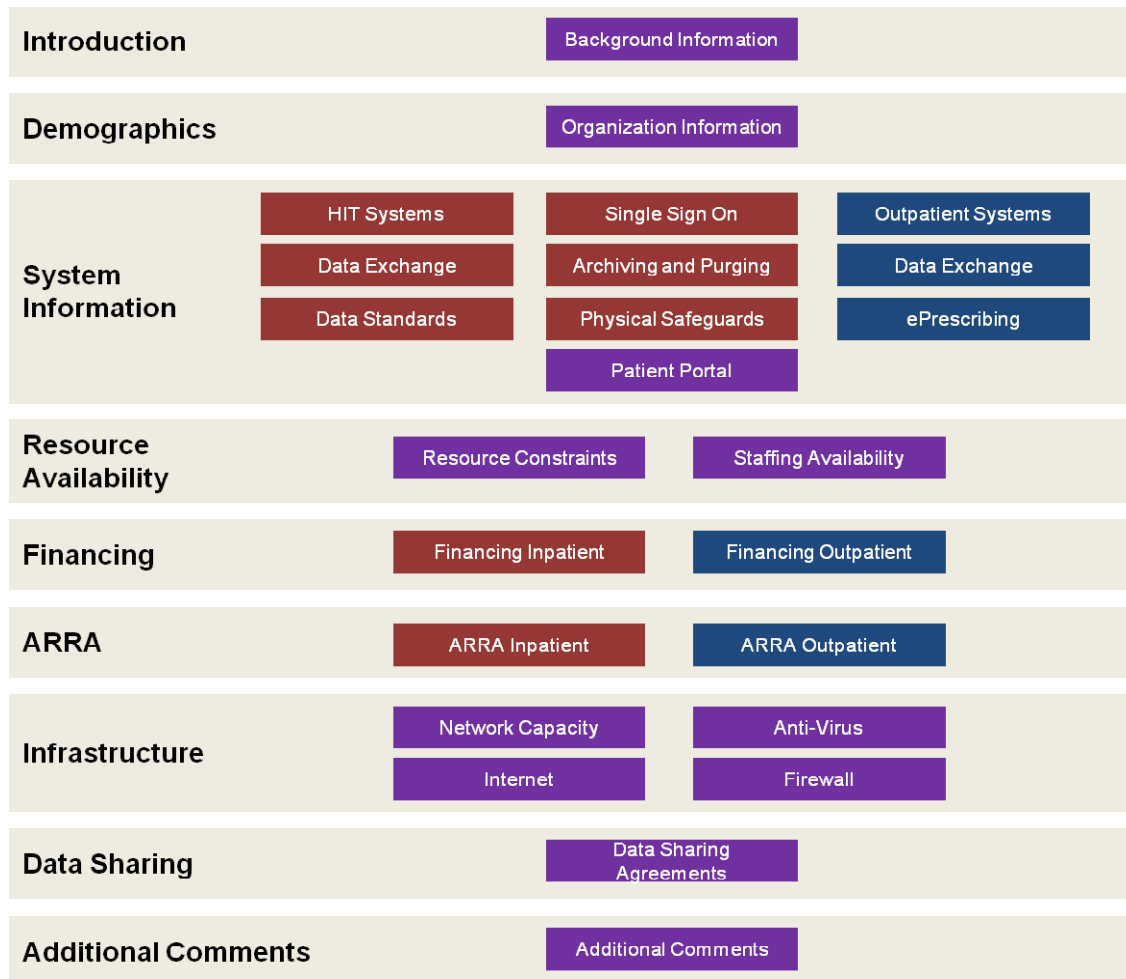


08/06/2009	Survey distributed to stakeholders
08/20/2009	Follow-up email sent to stakeholders
08/21/2009 – 08/25/2009	Additional follow-up calls to stakeholders
08/28/2009	HIT Asset Survey Due
08/28/2009 – 09/04/2009	Extended grace period for survey
09/04/2009	HIT Asset Survey Due – Final Submission Opportunity

**Table 3. Timeline of the HIT Asset Survey distribution for health systems, hospitals, and clinics.**

The HIT Asset Survey inventoried all major health systems, hospitals, and related clinics. It covered nine main threads, primarily focusing on health information resources and potential constraints for participation in a statewide HIE. Figure 1 shows the categories of questions applicable to all respondents (purple), inpatient service providers only (red), and outpatient service providers only (blue). The respondents only had to answer the questions specific to their organization type.

This deliverable does not include any analysis of the HIT Asset Survey results. This data will be analyzed in Phase 2 and will help identify the technical architecture and required interfaces.



**Figure 1. Composition of the HIT Asset Survey distributed to health systems, hospitals, and clinics.**

To maximize input from stakeholders, respondents had the option of answering the survey online or in MS Word. The figures below reflect a screenshot of the online version (left) and MS Word version (right). The MS Word version of the survey is provided in Appendix B.



**HIT Asset Survey**

**Section 2.2: HIT System Information**

If your organization has any of the following systems, please answer the following questions for each applicable system.

All of the system is developed or an off the shelf product?  
 If not, the name of the product? If not, system developed, what is the product? Please note that the product can be proprietary or open source. Please include the version number.  
 Are there plans to upgrade the system in the next two years?  
 Will the upgrade occur with the current vendor? If no, please provide the name of the vendor or start date.

HIT System Information

System Name	System Developed or Off the Shelf Product?			Name of Product and Version Number (or Investment Developer, provide position)	Are there plans to upgrade the system in the next two years?			If no, name of vendor or start date
	Custom Development	Off the Shelf	Not Applicable		Yes	No	No	
Barcode medication verification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bulk scanning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Computerized medication (digital) entry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Core ICD database with admission/discharge/transfer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
CRMS (Computerized physician order entry)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Document management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Document management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
EMR portal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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One such potential intangible functional asset identified during the state government interviews was the HIRSP governance structure. Several stakeholders suggested the HIRSP governance structure or potentially the evolutionary process it followed to transition from a state government entity to a public/private partnership might serve as a model for Wisconsin’s SLHIE entity. Previously, HIRSP was a function within DHS until it was transitioned to a quasi-public utility through legislation under Wis.Stat. Ch.149.

Other functional assets identified by the private health organizations included governance structures, bylaws, data sharing agreements, data use agreements, participation agreements, and other operational agreements. Although documented here, the functional assets need to be further explored in Phase 2 to determine their applicability and utility for Wisconsin’s SLHIE. The following table indicates the existence of the various functional assets within each of the organizations.

Functional Asset	RWHC	WCHQ	WHA	WHIE	WHIO
Governance structure	501(c)3	501(c)3	501(c)3	501(c)3	501(c)3
Bylaws	✓	✓	✓	✓	✓
Data use agreements		✓**	✓	✓	✓
Data sharing agreements		✓**	✓	✓*	
Business associate contracts	✓	✓			
Participation agreements		✓		✓	✓
MOUs				✓	
Strategic plan	✓	✓	✓		✓
Business scorecard	✓				
Other	Membership Agreements	Confidentiality Agreement		Multiple***	Confidentiality Agreement; New Member Joinder Agreement

**Table 4. Private health organizations’ functional assets.**

\*WHIE refers to its data sharing agreement as patient consent.

\*\*WCHQ refers to its data use and sharing agreements as a licensing agreement.

\*\*\*Please see appendix for additional self-reported “other” functional assets.

With the exception of the five private health organizations above, representatives of the self-identified HIE initiatives throughout Wisconsin were not interviewed and was outside the scope of Phase 1. However, the project team recommends conducting further data collection activities during Phase 2 to determine if any other functional



assets exist that could be leveraged for Wisconsin’s SLHIE. Refer to Appendix D for a list of the self-identified HIE initiatives in Wisconsin.

**3.1.2 Technical Assets**

The state government and private health organization interviews and surveys identified numerous technology applications. Interviewees recommended specific applications that might be most relevant to statewide HIE. Using self-reported data, the project team evaluated each application asset based on its relevance to a potential data user or contributor using the asset as well as the asset’s potential to be used as part of or in support of a statewide HIE. Each asset was then categorized by “information type” (e.g., demographics, quality data, etc.) (see Table 5). We define information type as the type of data maintained or processed by the asset. A given asset may be counted against more than one information type because it performs multiple functions, such as ForwardHealth interChange system. The categorization helped to align applications with recommended services. The result was the identification of multiple applications potentially relevant to Wisconsin’s SLHIE and statewide exchange. Since the assets were self-reported, the project team recommends additional analysis in Phase 2 regarding each of the highlighted application assets. Results of the inventory surfaced multiple assets that process or store critical pieces of information or data important to services provided by a SLHIE, but did not identify any assets that fully meet the requirements of most HIE services.

**State Government**

Information Types	Total
Admission, Registration & Billing	1
Care Documentation	2
Demographics	4
Disease Information	5
Eligibility Information	4
Encounters	1
Immunizations	1
Licensing Information	2
Medicaid Claims	1
Medication Information	1
Provider Information	3
Public Health Information	1

**Private Health Organizations**

Information Types	Total
Administrative Claims	1
ADT/Order/Results/Care	1
Care Documentation	1
Quality Data	1

**Table 5. State government and private health organizational assets tallied and sorted by information type.**

An additional category of potential assets separate from the aforementioned assets includes the high-speed broadband networks maintained by state government. The primary assets include the BadgerNet Converged Network (BCN) maintained by the Department of Administration and the Department of Instruction. The BCN serves state



agencies, libraries, and educational institutions. On August 20, 2009, the DOA submitted an application to obtain first-round ARRA funding for broadband. Another state network asset is WiscNet. Additional information on the BCN grant application and WiscNet should be collected so consideration can be given to how these assets can be used in the State's Strategic and Operational Plans for statewide HIE.

More details on the technical assets can be found in Appendix E. Please note that the health care providers' HIT asset survey data are also included in Appendix E.

#### **4. SERVICE SELECTION AND PRIORITIZATION**

It is important to understand what services stakeholders want a SLHIE governance entity to provide in order to determine the SLHIE operating model best suited for Wisconsin. Building on previous efforts within Wisconsin and at the national level, the SLHIE Planning and Design Project surveyed stakeholders with the purpose of identifying and prioritizing needed HIE services.

As identified in the Stakeholder Assessment and Environmental Scan deliverable, our process began with a wide list of services that could be offered by a state-level HIE. For more details on stakeholder preferences for services potentially provided at the state level versus the regional level, please refer to the Stakeholder Assessment and Environmental Scan deliverable. The following table includes and defines the full list, in alphabetical order, of potential state-level services included in our preliminary review.

<b>HIE-Related Service</b>	<b>Definition</b>
Advance Directives Management	Maintains and exchanges a patient's legal documentation such as a living will, durable power of attorney for health care, etc.
Audit Trail	Tracks when, where, and what data was accessed and who accessed the data through an HIE entity
Benchmarking and Reporting	Defines and delivers a set of reports that leverage data available through an HIE entity and provide the public and provider organizations with information that can be used to fulfill pay-for-performance or Medicare and Medicaid incentive requirements, facilitate process improvement, etc.
Clinical Decision Support	Distributes standardized clinical rules that can be incorporated into EHR systems or e-Prescribing systems in support of clinical decision making at the point of care
Clinical Portal	A web-based service offered to providers for accessing, viewing, and downloading clinical data available from data sources connected to an HIE
Connection to NHIN	A set of services that enable Wisconsin stakeholders to connect to data seekers and data providers outside of Wisconsin by connecting to a national "network of networks," thereby enabling HIE to occur at a national level
Cross-Enterprise User Authentication	A mechanism for identifying and authenticating clinical system users to validate their right to access clinical information based upon privacy rules, patient consent, and individual user and organizational roles



HIE-Related Service	Definition
Data Transformation	A mechanism for facilitating the intake of data in multiple formats in real time through the use of an integration engine, which transforms the data into a useable format
Electronic Health Record Provisioning	A set of services that establish group purchasing or licensing agreements for, and assist with implementation of EHR applications for interested providers within Wisconsin
Lab Results Exchange	A mechanism for facilitating the delivery of patient lab results for use in clinical care
Medication History Exchange	A mechanism for facilitating the delivery of patient prescription history to providers for use in prescribing, clinical care, and medication management
Patient Consent Management	A process for defining levels of patient consent and for tracking those consents and authorizations to share personal health information through an HIE entity
Patient Identifier	A methodology and related services used to uniquely identify an individual person as distinct from other individuals and connect his or her clinical information across multiple providers using an Enterprise Master Patient Index (EMPI)
Patient Registry Connectivity	A set of services that enable providers to connect to multiple existing state and national patient registries (e.g., Wisconsin immunization registry) using common standards and interfaces
Personal Health Record Exchange	A mechanism for facilitating the electronic delivery of personal health information to individual patients' personal health records
PHI De-identification	A mechanism for removing demographic and other person-identifying data from personal health information and other health care data so that they can be used for public health reporting, quality improvement, research, benchmarking, and other secondary uses
Population Health	A set of services that fulfill various state and federal public health and chronic disease management practice requirements—such as biosurveillance, predictive modeling, health risk assessment, and case management—by leveraging and aggregating data available through an HIE entity
Quality Reporting	A process and mechanism to measure, aggregate, and report on hospital and clinician quality and use of quality measures to support clinical decision-making, accountability, and transparency
Record Locator	A mechanism for identifying and matching multiple patient records together from different data sources
Support for "Meaningful Use"	Assistance and services to providers in support of their efforts to meet the "meaningful use" requirements for receiving incentive funding from Medicare and Medicaid under the American Recovery and Reinvestment Act
Terminology Service	A service that ties together technology, nomenclature, data-element, or coding-transactions standards across disparate systems, normalizing (among others) HIPAA-standard transaction sets including HL7 and ANSI, LOINC, SNOMED CT, RxNorm, ICD, NCPDP, HCPCS, CPT, and document terminology

**Table 6. All potential HIE-related services discussed at the HIE Regional Summit Meetings.**

The following diagram depicts the process used to select and prioritize HIE services to be provided at a state level and took into consideration stakeholder-identified needs, and required and suggested patient/population health and shared-utility services. The subsequent section discusses each area of this process in detail.





### 4.1 Identifying HIE Services

At their core, HIE services involve the flow of information—making it important to understand stakeholders’ information needs. During the Summit Meetings, stakeholders identified 18 specific, information-based service needs as well as desirable attributes associated with exchanging information. These attributes included: timeliness, scalability, accuracy, currency, “audit-ability,” user-friendliness, confidentiality, comprehensiveness/completeness, standardization, and equitability. Table 7 lists the identified information-based needs.

Identified Stakeholder Needs	
Admission/Discharge/Transfer	Patient identification
Administrative data	Population health
Advance directives	Public health case reporting
Allergy and medication lists	Quality indicators and measures
Chronic disease management	Quality reporting
Cross-state exchange	Real-time pharmacy
Demographics	State registries (e.g., Immunization)
Diagnostic test results (e.g., Lab, radiology)	Terminology standards
Lab data exchange	Transitions in care (e.g., LTC, foster care)

**Table 7. During the Summit Meetings stakeholders identified various information-based service needs that corresponded to existing state and national services.**

The responses received from stakeholders are consistent with earlier findings by the eHealth Board’s Patient Care Workgroup. Furthermore, they are in alignment with the eHealth Board and the ONC’s State HIE CAP FOA recommended services and helped guide the prioritization process.

In addition to identifying their information needs, stakeholders were asked through the HIE Capabilities Survey to prioritize the most commonly provided SLHIE services. Survey participants selected one of four levels of importance for each service (critical, high, medium, and low). Over half of the services received a critical/very important rating of 75 percent or greater. All services received over 50 percent in the combined category. The results of the prioritization in the following table reflect the averaged total, from highest to lowest, across all five Summit Meetings and stakeholder types. The following table includes all services.

HIE-Related Service	Critical / Very Important
Medication History Exchange	96%
Patient Identifier	94%
Record Locator	87%
Lab Results Exchange	86%
Support for “Meaningful Use”	83%
Audit Trail	83%
Cross-Enterprise User Authentication	81%
Data Transformation	78%



HIE-Related Service	Critical / Very Important
Patient Registry Connectivity	77%
Clinical Portal	75%
Patient Consent Management	75%
Connection to NHIN	73%
PHI De-identification	72%
Population Health	72%
Benchmarking and Reporting	68%
Terminology Service	63%
Personal Health Record Exchange	62%
Electronic Health Record Provisioning	61%
Clinical Decision Support	56%
Advance Directives Management	51%
<b>Average Ranking/Preference</b>	<b>73%</b>

Table 8. Percentage of respondents who identified the HIE-related services as “critically” or “very important” in the HIE Capabilities Survey.

Next, the HIE-related services were divided into two categories of technical services: “patient/population health focused” and “shared utility.” The patient/population health-focused technical services (herein referred to as “patient/population health services”) are those services that directly affect patient care or population health and generally correlate to a HHS/NeHC use case. A full list of use cases is included in Appendix C. Shared-utility technical services (herein referred to as “shared-utility services”) are re-usable services that enable patient/population health services and generally correlate to components within a HIE technical architecture. The following table assigns each service to either patient/population health or shared-utility services and includes its respective stakeholder ranking from the HIE Capabilities Survey. Of the nine patient/population health services, the top three respectively include Medication History Exchange, Lab Results Exchange, and Support for “Meaningful Use.” Of the 11 shared-utility services, the top three respectively include Patient Identifier, Record Locator, and Audit Trail. Services listed in the table below are arranged alphabetically.

Patient/Population Health Services	Critical/Very Important	Shared-Utility Services	Critical/Very Important
Benchmarking and Reporting	68%	Advance Directives Management	51%
Connection to NHIN	73%	Audit Trail	83%
Electronic Health Record Provisioning	61%	Clinical Decision Support	56%
Lab Results Exchange	86%	Clinical Portal	75%
Medication History Exchange	96%	Cross-Enterprise User Authentication	81%
Patient Registry Connectivity	77%	Data Transformation	78%
Personal Health Record Exchange	62%	Patient Consent Management	75%
Population Health	72%	Patient Identifier	94%



Patient/Population Health Services	Critical/Very Important	Shared-Utility Services	Critical/Very Important
Support for “Meaningful Use”	83%	PHI De-identification	72%
		Record Locator	87%
		Terminology Service	63%

Table 9. Percentage of respondents who identified the HIE-related services as “critically” or “very important” in the HIE Capabilities Survey by patient/population health and shared-utility technical services.

#### 4.2 Selection of Patient/Population Health-Focused Technical Services

Selection of the patient/population health services to be prioritized began by comparing the recommendations made by the eHealth Board’s Patient Care Workgroup with the patient/population health services discussed at the Summit Meetings. The Workgroup evaluated and defined various clinician and patient-focused priorities and selected services based on whether the individual services met the following four primary criteria. The service:

1. Is technically feasible and lays the foundation for later, more complex projects;
2. Falls within the information-sharing willingness and trust of major stakeholders (including patients);
3. Enables desired information products and value creation; and
4. Can generate revenue to fund ongoing operation and future expansion of services.

The result was a set of selected services the Workgroup then prioritized based on the “reach, feasibility, and impact” of beneficial changes in health care and public health practice. Using this list as the starting point for identifying and selecting potential SLHIE patient/population health services, the eHealth Board’s Patient Care Workgroup recommended services were compared to the most commonly provided SLHIE services identified by AHIMA’s SLHIE Consensus Project and the required services identified in the ONC’s recent State HIE CAP FOA. The FOA serves as a key driver for the identification and selection of services—it includes seven core information types the ONC expects states to be able to exchange statewide. The ONC deferred to the states to prioritize and sequence these information exchange services. Note that beginning in 2006, the ONC had developed high-level use cases that identified relevant stakeholders, information flows, issues, and system needs that apply to the multiple organizations participating in data exchanges. These use cases encompassed the patient/population health services. The ONC grouped several of the use case concepts into single required services that are now included in the ONC’s State HIE CAP FOA.

The following table displays the services identified through each of the aforementioned sources and the relational mapping between each source.



### HIE Services Mapping

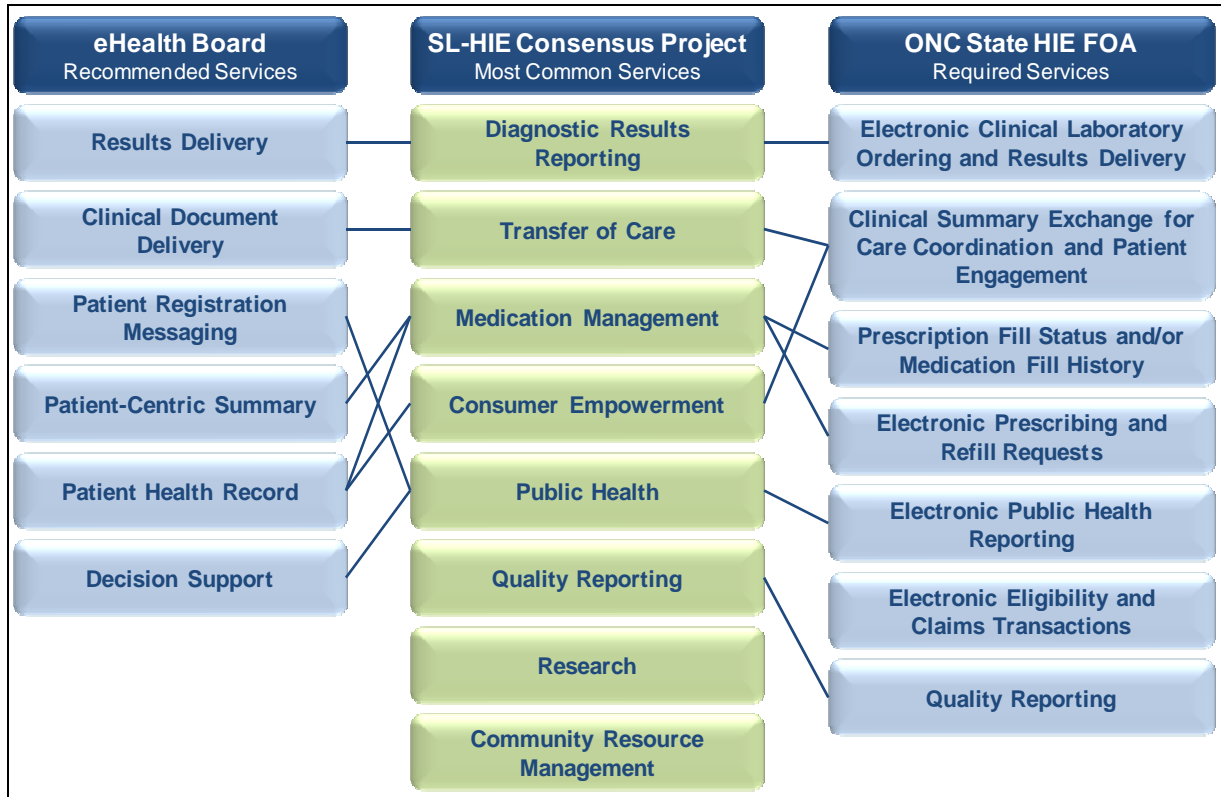


Figure 4. HIE Services mapping between the eHealth Board, SL-HIE Consensus Project, and the ONC’s State HIE CAP FOA.

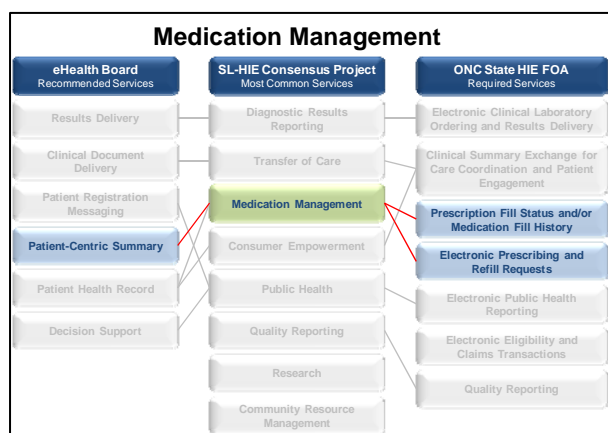


Figure 5. Medication Management mapping example

Many commonalities exist between the services identified in each list. For example, the eHealth Board’s Patient-Centric Summary service includes a “longitudinal summary of dispensed prescriptions and medication allergies.” The SL-HIE Consensus Project’s Medication Management service provides medication history retrieval and aggregation from multiple sources, Medicaid and insurance eligibility checks, formulary queries, and e-prescribing functionality. Figure 5, illustrates services identified by the eHealth Board and SL-HIE Consensus Project that map to two of the ONC’s State HIE CAP FOA required services: e-Prescribing and Refill Requests, and Prescription Fill Status and/or Medication Fill History.



Other examples include the eHealth Board’s Results Delivery service, which corresponds to the SL-HIE Consensus Project’s Diagnostic Results Reporting service and the ONC’s Electronic Clinical Laboratory Ordering and Results Delivery service (Figure 6). The Electronic Eligibility and Claims Transactions service is the only service that did not specifically align with recommendations included in either the eHealth Board’s or SL-HIE Consensus Project’s lists.

Details regarding the eHealth Board’s Patient Care Workgroup’s recommended services, national priorities and HIE use cases, and the State-Level HIE Consensus Project’s most commonly identified SLHIE services can be found in Appendix C.



**Figure 6. Results Delivery mapping example**

During the Summit Meetings, attendees were presented with the list of common SLHIE services identified by the SL-HIE Consensus Project and asked to rank them in priority order from most important to least important service to be provided by a SLHIE statewide. Attendees also had the opportunity to note additional services that they considered important but were not included in the SL-HIE Consensus Project’s list of services. The following table reflects the stakeholders’ prioritized ranking of the patient/population health services captured during the Summit Meetings.

<b>Prioritized Ranking</b>	<b>HIE Summit Meeting Prioritized Services</b>
1	Medication Management
2	Electronic Health Record – Lab Results
3	Consultations/Transfers of Care
4	Diagnostic Results Reporting
5	Quality
6	Biosurveillance
7	Public Health
8	Consumer Empowerment
9	Consumer Access to Clinical Information
10	Research
11	Community Resource Management

**Table 10. Priority of patient/population health technical services based on handouts from the HIE Regional Summit Meetings.**



Most of the patient/population health services identified at the national level (including use cases and ONC-required services in the State HIE CAP FOA) are broad categories of service that can encompass several discrete services, making prioritization of these services a challenge. The project team adjusted the list of services in order to obtain the level of detail needed to prioritize the services. First, three patient/population health services were added (i.e., Eligibility and Claims Exchange, Care Coordination, and Provider), as identified in italics in the following table in the Level 1 column. These services were added to align the list with the ONC-required services in the State HIE CAP FOA and the provider-focused service needs identified by stakeholders. Next, the project team added a second level of discrete patient/population health services. The second level of services includes common patient/population health services offered at the state level based on experience and industry research. The following table includes the adjusted list of Level 1 patient/population services aligned with the more discrete list of Level 2 services. Several of the Level 1 patient/population health services don't precisely align with a Level 2 discrete service or services. For example, Medication Management aligns with three discrete patient/population health services: e-Prescribing, Medication History Exchange, and Statewide Formulary.

<u>Level 1</u> Patient/Population Health Services	<u>Level 2</u> Discrete Patient/Population Health Services
<ul style="list-style-type: none"> <li>• <b>Diagnostic Results Reporting</b></li> <li>• <b>EHR – Lab Results</b></li> <li>• <b>Consultations/Transfer of Care</b></li> </ul>	<ol style="list-style-type: none"> <li>1. Diagnostic Results Reporting (text)</li> <li>2. Diagnostic Results Reporting (image)</li> <li>3. Continuity of Care Record</li> <li>4. Full Interoperable Exchange</li> </ol>
<ul style="list-style-type: none"> <li>• <i>Eligibility and Claims Exchange</i></li> </ul>	<ol style="list-style-type: none"> <li>5. Eligibility Checking</li> <li>6. Claims Transactions</li> </ol>
<ul style="list-style-type: none"> <li>• <b>Medication Management</b></li> </ul>	<ol style="list-style-type: none"> <li>7. e-Prescribing</li> <li>8. Medication History Exchange</li> <li>9. Statewide Formulary</li> </ol>
<ul style="list-style-type: none"> <li>• <i>Care Coordination</i></li> </ul>	<ol style="list-style-type: none"> <li>10. Referral/Discharge Service</li> <li>11. (Chronic) Disease Management</li> </ol>
<ul style="list-style-type: none"> <li>• <b>Community Resource Management</b></li> </ul>	<ol style="list-style-type: none"> <li>12. Real-Time Resource Utilization/Availability</li> </ol>
<ul style="list-style-type: none"> <li>• <b>Quality Reporting</b></li> </ul>	<ol style="list-style-type: none"> <li>13. Outcome Measurement and Reporting</li> </ol>
<ul style="list-style-type: none"> <li>• <b>Public Health</b></li> </ul>	<ol style="list-style-type: none"> <li>14. Immunization Registry</li> <li>15. Population Management</li> </ol>
<ul style="list-style-type: none"> <li>• <b>Biosurveillance</b></li> </ul>	<ol style="list-style-type: none"> <li>16. Biosurveillance</li> </ol>
<ul style="list-style-type: none"> <li>• <b>Consumer Access to Clinical Information</b></li> <li>• <b>Consumer Empowerment</b></li> </ul>	<ol style="list-style-type: none"> <li>17. Advanced Directive</li> <li>18. Personal Health Record</li> <li>19. Health Bank</li> </ol>



Level 1 Patient/Population Health Services	Level 2 Discrete Patient/Population Health Services
<ul style="list-style-type: none"> <li>• Research</li> </ul>	20. Clinical Trial Registry 21. Research EHR
<ul style="list-style-type: none"> <li>• Provider</li> </ul>	22. Regulatory Reporting 23. Secure Provider Messaging 24. Credentialing

**Table 11. Alignment of Patient/Population Health services with discrete patient/population health services to enable prioritization.**

### 4.3 Selection of Shared-Utility Technical Services

The shared-utility services required to support the patient/population health services are potential consumable services the Wisconsin’s SLHIE could offer to stakeholders. Similar to the patient/population health services, the ONC provided some direction on shared-utility services. The ONC suggests several shared-utility services be provided by the SLHIE. The HIE Capabilities Survey asked stakeholders to identify which shared-utility services are of the highest importance. Most of the ONC’s suggested shared-utility services were ranked as either critical or very important by stakeholders. The lowest ranking services, Terminology Service and Advance Directives, still received rankings greater than 50 percent at 63 and 51 percent, respectively. Table 12 displays the stakeholders’ responses as well as a mapping to the ONC’s recommended shared-utility services.

Shared Utility services	Critical/Very Important	ONC Cooperative Agreement State-Level Shared Services
Patient Identifier	94%	Patient Locator Service
Record Locator	87%	Data/Document Locator Service
Audit Trail	83%	
Cross-Enterprise User Authentication	81%	Security Service
Integration Engine (Data Transformation)	78%	Secure Routing
Patient Consent Management	75%	Consent Management
Clinical Portal	75%	Messaging
PHI De-identification	72%	
Terminology Service	63%	Terminology Service
Clinical Decision Support	56%	
Advance Directives Management	51%	Advance Directives

**Table 12. Percentage of respondents who identified the shared-utility technical services as “critically” or “very important” in the HIE Capabilities Survey mapped to the ONC’s State HIE CAP FOA’s state-level shared-utility services.**

Other shared-utility services mentioned by the ONC as “Expectations for Key Accomplishments” in the first 2 years of the State HIE CAP include provider directories (e.g., w/practice location(s), specialties, health plan participation, disciplinary actions, etc.) and directories suited for laboratory service providers, radiology service providers,



health plans (e.g., with contact and claim submission information, required laboratory or diagnostic imaging service providers, etc.).

In the HIE Capabilities Survey, respondents indicated a preference for a majority of the shared-utility services to be provided by Wisconsin’s SLHIE. The shared-utility services ranking below 50 percent included the Clinical Portal and Clinical Decision Support. The table below shows stakeholders’ preference for shared-utility technical services to be provided at the state level rather than the regional or local level.

Shared Utility Services	Provided by SLHIE
Patient Identifier	67%
Terminology	66%
Audit Trail	63%
Record Locator	61%
Cross-Enterprise User Authentication	60%
Data Transformation	60%
PHI De-identification	60%
Patient Consent Management	52%
Advance Directives Management	51%
Clinical Portal	49%
Clinical Decision Support	45%

**Table 13. Stakeholders’ preference for SLHIE shared-utility technical services.**

#### **4.4 Service Prioritization**

The project team decided to focus its service prioritization activities for this deliverable only on the identified and selected patient/population health services for the following reasons:

1. The ONC’s State HIE CAP FOA required specific patient/population health services, but only suggested certain shared-utility services;
2. Selected patient/population health services will in part determine the enabling shared-utility services; and
3. Certain shared-utility services will be based on the technical operating model, which has yet to be determined.

The project team used four criteria categories to prioritize the patient/population health services: Strategy/Compliance, Participation, Financial, and Technical. Eleven sub-criteria provided additional granularity to evaluate the discrete patient/population health services. The Strategy/Compliance category evaluates a service’s general alignment with state and national quality of care and patient safety goals, stakeholder priorities, and the ONC’s State HIE CAP FOA requirements. The Participation category includes sub-criteria focused on the service’s value proposition, risks associated with privacy and security, and adoption. The Financial category addresses the issues of sustainability,



financial risk, and efficiency of the service. The Technical category includes sub-criteria focused on the service’s technical risk and the ability to leverage an existing asset. The following table defines the sub-criteria within each of the four prioritization criteria categories.

<b>Prioritization Criteria</b>	<b>Definition</b>
<b>Strategy/Compliance</b>	
- Alignment with care quality and patient safety goals	This criterion is based on the service’s ability to support quality of care and patient safety improvement goals as suggested by the eHealth Board’s Patient Care Workgroup and the SL-HIE Consensus Project’s “magnitude of clinical value” indicator.
- Alignment with stakeholder priorities	This criterion is based on the service’s alignment with preferences identified during the stakeholder scan and noted in Deliverable 2.
- Alignment with ONC framework	This criterion is based on the service’s alignment with the required services identified in the ONC’s State HIE FOA.
<b>Participation</b>	
- Ability to generate strong value proposition	This criterion is based on the service’s ability to provide stakeholders with clear value, as supported by research, to increase the likelihood of participation.
- Low privacy concern/low security risk	Using information from the eHealth Action Plan, the eHealth Board’s Patient Care Workgroup recommendations, and industry research, this criterion is based on the service’s ability to mitigate privacy concerns. The lower the privacy concerns, the better.
- Ease of adoption/low adoption risk	This criterion is based on the service’s ease of integration into workflows, as identified by the SL-HIE Consensus Project, resulting in higher adoption levels.
<b>Financial</b>	
- Revenue generation and self-sustainability	This criterion is based on the service’s ability to generate revenues to achieve self-sustainability as suggested by the SL-HIE Consensus Project and industry research.
- Limited investment need/low financial risk	This criterion is based on the level of investment required to develop or provide the service and/or the relative financial risk presented by the service as demonstrated through research. In each case, the lower the investment/risk, the better.
- Efficiency improvement potential	This criterion is based on the service’s potential magnitude to enable efficiency improvements as suggested by the SL-HIE Consensus Project.
<b>Technical</b>	



<b>Prioritization Criteria</b>	<b>Definition</b>
- Existing market solution/low technical and set-up risk	This criterion is based on the potential availability of an existing solution within the market to support or enable the service, as indicated by KLAS Research and other industry references.
- Existing state asset	This criterion is based on the service's potential ability to leverage an existing technical asset identified through the state government and private health organization asset inventory.

**Table 14. Prioritization criteria for patient/population health technical services by primary group (strategy/compliance, participation, financial, and technical).**

The final composite score for each service is the sum total of the weighted percentages across all of the criteria. Scoring involved a calculation based on a high, medium, or low ranking for each service. The ranking equated to a numeric value (3=high, 2=medium, 1=low) which was then multiplied by the criterion's assigned weighted percentage. The weighted percentage was based on importance and alignment to quality of care and patient safety goals, stakeholders' priorities, and the ONC framework. The values for each service were then added to derive the final composite score.

Table 15 shows the results of the high-level prioritization of the patient/population health services. Detailed results of the prioritization can be found in Appendix C. Individual rankings factored in data from multiple sources listed below:

- eHealth Action Plan and eHealth Board's Patient Care Workgroup
- Deloitte experience
- Duke Translational Medicine Institute
- KLAS Research
- ONC's State HIE CAP FOA
- AHIMA's SL-HIE Consensus Project
- Stakeholder Assessment and Environmental Scan deliverable
- WI SLHIE State Government and Private Health Organization Asset Inventory

The discrete patient/population health services to be provided at the state level, which received the highest prioritization include: Outcome Measurement and Reporting (2.83), Population Management (2.62), e-Prescribing and Regulatory Reporting (2.38), and Continuity of Care Record (2.32). This "first-tier" of discrete services is closely followed by a "second-tier" of discrete services: Medication History Exchange (2.24), Advance Directive (2.22), Diagnostic Results Reporting (image) (2.22), and Biosurveillance (2.10). This second tier is important because some of these discrete services could serve as some of the initial services, and they align with stakeholder priorities and the ONC's State HIE CAP FOA requirements. Two discrete services falling near the bottom



of the ranking in the list include Claims Transactions (1.56) and Eligibility Checking (1.72). Despite their low ranking, these services need to be considered given the ONC’s emphasis on these services as a required HIE service within the “meaningful use” framework.

Further evaluation and sequencing of the patient/population health services will be performed in Phase 2 based on business feasibility and technical requirements.

Patient Care Services	Discrete Patient Care Services	State-Level Services Only
<ul style="list-style-type: none"> <li>Diagnostic Results Reporting</li> <li>EHR – Lab Results</li> <li>Consultations/Transfer of Care</li> </ul>	Diagnostic Results Reporting (text)	⇒ 2.04
	Diagnostic Results Reporting (image)	⇒ 2.22
	Continuity of Care Record	↑ 2.32
	Full Interoperable EHR	↓ 1.52
<ul style="list-style-type: none"> <li>Eligibility and Claims Exchange</li> </ul>	Eligibility Checking	↓ 1.72
	Claims Transactions	↓ 1.57
<ul style="list-style-type: none"> <li>Medication Management</li> </ul>	ePrescribing	↑ 2.38
	Medication History Exchange	⇒ 2.24
	Statewide Formulary	⇒ 2.07
<ul style="list-style-type: none"> <li>Care Coordination</li> </ul>	Referral/Discharge Service	⇒ 1.85
	(Chronic) Disease Management	⇒ 1.86
<ul style="list-style-type: none"> <li>Community Resource Management</li> </ul>	Real-Time Resource Utilization/Availability	↓ 1.57
<ul style="list-style-type: none"> <li>Quality Reporting</li> </ul>	Outcome Measurement and Reporting	↑ 2.83
<ul style="list-style-type: none"> <li>Public Health</li> <li>Biosurveillance</li> </ul>	Immunization Registry	⇒ 1.85
	Population Management	↑ 2.62
	Biosurveillance	⇒ 2.10
<ul style="list-style-type: none"> <li>Consumer Access to Clinical Information</li> <li>Consumer Empowerment</li> </ul>	Advanced Directive	⇒ 2.22
	Personal Health Record	⇒ 1.82
	Health Bank	↓ 1.26
<ul style="list-style-type: none"> <li>Research</li> </ul>	Clinical Trial Registry	⇒ 1.88
	Research EHR	⇒ 1.92
<ul style="list-style-type: none"> <li>Provider</li> </ul>	Regulatory Reporting	↑ 2.38
	Secure Provider Messaging	↓ 1.56
	Credentialing	↓ 1.74

Table 15. Prioritization of the patient/population health services.

## 5. ASSET AND SERVICE CONSIDERATIONS

Various considerations emerged through the process of identifying existing state government and private health organizational functional and technical assets and the prioritized patient/population health and shared-utility services. The considerations are preliminary and generally will require further analysis in Phase 2 of the Wisconsin SLHIE Planning and Design Project. The following sections discuss these considerations.



### 5.1 Preliminary Considerations for Leveraging Existing Assets

The ONC’s State HIE CAP FOA emphasizes the need to leverage existing assets that could support Wisconsin’s SLHIE and statewide exchange. Two primary forms of assets exist: functional and technical. From a functional perspective, it is important to consider the ONC’s guidance and expectations relative to HIE governance, stakeholder representation, accountability, and sustainability, to name a few.

The project team reviewed and considered state government and private health organizations’ functional assets in terms of their relevance to Wisconsin’s SLHIE and statewide exchange. Considerations included the individual functional asset’s ability to support the SLHIE entity on a statewide basis. The project team applied three primary areas of consideration to its review of an organization’s functional assets: experiential, governance, and business operations. The experiential area of consideration includes the general experience the organization has in convening and communicating with stakeholders, and development of workflows and analytics. The governance structure area of consideration includes the key planning and implementation aspects communicated by the ONC such as legal status, stakeholder representation, transparency, and government participation. The third area of consideration, business operations, includes general business practices, security, policies, procedures, and sustainability. Each of the areas of primary consideration includes several secondary areas of consideration as identified in the following table.

Functional Considerations	Description
<b>Experiential</b>	
- Adoption	Experience working with stakeholders to adopt a service by defining and demonstrating a value proposition
- Stakeholder communications	Experience communicating with stakeholders to inform and market services to a target audience as well as engaging stakeholders to achieve buy in
- Developing workflows	Experience working with stakeholders to integrate products and/or services into workflows to offer a richer user experience
- Developing analytics	Experience leveraging data to develop analytics products and/or services available to the public or target audiences, such as Public Health
<b>Governance Structure</b>	
- Legal status	In accordance with stakeholder preferences and ONC requirements, governance entities should be not-for-profit, public-private partnerships
- Multi-disciplinary stakeholder representation	In accordance with ONC requirements, governance structures must include multi-disciplinary stakeholder representation
- Open and transparent	In adherence with ONC requirements, governance entities should provide transparency including open meetings and publicly available reports



Functional Considerations	Description
- State government participation (Medicaid and Public Health)	In adherence with ONC requirements, governance entities must include significant involvement by state government (e.g., DHS, Medicaid, and Public Health officials) through participation on governance boards and in other decision-making capacities
<b>Business Operations</b>	
- Sustainability	Entities should provide services identified as being in demand and that demonstrate an ability to generate revenues (as indicated by AHIMA) or are currently self sustainable
- Legal/Policy	Entities should maintain formal and existing data sharing, data use, business associate, participant agreements, and other defined operational policies, and forms (e.g., memorandums of understanding, bylaws, and service level agreements)
- Enablement of public health data usage	Entities with existing capabilities should provide de-identified data for public health uses
- Robust security safeguards and controls	Entities should include robust security policies and procedures, such as data access audit trails and reports, and third-party audits (e.g., SAS 70)

**Table 16. High-level functional considerations and descriptions.**

In reviewing the functional considerations, the SLHIE Planning and Design project team noted which private health organizations exhibited or included the attributes associated with the various considerations. The following table highlights the project team’s findings and provides an aggregated view of how all the private health organizations collectively aligned with the consideration. In terms of alignment, a full circle represents “all” of the organizations, a three-quarter circle represents “most” of the organizations, half of a circle represents “some” of the organizations, one-quarter of a circle represents “few” of the organizations, and an empty circle represents “none” of the organizations.

Functional Considerations	Findings	Alignment
<b>Experiential</b>		
- Adoption	All of the organizations reviewed demonstrated experience involving various stakeholder types and presented some degree of a value proposition	
- Stakeholder communications	All of the organizations reviewed demonstrated an ability to achieve buy-in among stakeholders and effectively market services	
- Developing workflows	Few of the organizations reviewed effectively integrated their services with their clients'/stakeholders' workflows. In cases where experience developing workflow was not found, it is often a result of a lack of applicability to the service(s) offered by the organization	
- Developing analytics	Most of the organizations reviewed had experience developing and providing tools to public health for data analytics	



Functional Considerations	Findings	Alignment
<b>Governance Structure</b>		
- Legal status	All of the organizations are not for profit with 501(c)3 status	
- Multi-disciplinary stakeholder representation	Few of the organizations' governance structures include the multi-disciplinary stakeholder representation required by the ONC when considering the individual organization's ability to serve as a state-level HIE entity	
- Open and transparent	None of the organizations reviewed exhibited a level of openness and transparency required by the ONC's State HIE CAP FOA, such as public announcement of meetings, posting of meeting minutes, and dissemination of other pertinent documents for public viewing	
- State government participation (e.g., Medicaid, Public Health)	Some of the organizations reviewed include Medicaid and Public Health participation on governance boards or in other advisory capacities. Medicaid and Public Health do not participate from a governance perspective for some of the organizations for varying reasons, but primarily because the organization's scope of activities and/or services do not necessitate Medicaid or Public Health involvement	
<b>Business Operations</b>		
- Sustainability	Few of the organizations reviewed are currently self-sustainable despite providing services stakeholders find appealing or of value. Most of the organizations are dependent upon government or philanthropic funding sources	
- Legal/Policy	All of the organizations reviewed enforce data sharing and use agreements, business associate contracts, participant agreements, and/or other defined operational policies and forms (e.g., memorandums of understanding, bylaws, and service level agreements)	
- Enablement of public health data usage	Few of the organizations reviewed currently provide or make their data available to Public Health for tracking and analysis. In the future, the organizations may be able to provide this service, but the general lack of real-time data minimizes the value of the data.	
- Robust security safeguards and controls	Few of the organizations reviewed currently have the robustness of security required by the ONC's State HIE CAP FOA and the HITECH provisions of the ARRA. This includes third-party auditing and mechanisms for real-time audit trails. Some of the organizations do not employ such capabilities based on the nature of the data processed or managed (i.e., not holding or using Protected Health Information [PHI]).	

**Table 17. Review of private health organizations' functional assets and aggregated findings.**

No single private health organization addresses all of the functional considerations. From an experiential perspective, the organizations have much to offer. Fewer



opportunities exist from a governance and business operations perspective. In particular, no organization currently provides the level of transparency required by the ONC. From a governance perspective, only one functional asset emerged from the asset inventory, specifically the process HIRSP followed in evolving from a state government entity to a quasi-public entity. This should be further analyzed as the DHS transitions responsibilities associated with Wisconsin's SLHIE to a State-Designated Entity.

From a technical perspective and in accordance with the ONC's State HIE CAP FOA requirement to evaluate and leverage existing assets, preliminary analysis indicates several state government assets have the potential to support or interface with the future statewide HIE. These include the Master Client Index (MCI) used by the eligibility benefits, Medicaid, and child welfare programs; ForwardHealth interChange; the Public Health Information Network (PHIN); the Electronic Laboratory Reporting system (ELR); the Wisconsin Electronic Disease Surveillance System (WEDSS); and the Wisconsin Immunization Registry (WIR). To some degree, these assets have the potential to enable specific patient-care services and could serve as some of the initial services. Other applications that maintain or process information that could be of value to Wisconsin's SLHIE and statewide exchange were identified which deserve further analysis in Phase 2.

A final observation pertaining to the private health organizations' technical assets is the need for more detailed analysis to determine the assets' scalability, extensibility, and security. This includes additional analysis of WHIE's technical capabilities as well as analyzing other existing HIE initiatives within Wisconsin.

## **5.2 Preliminary Service Considerations**

The ONC's State HIE CAP FOA included required patient/population health services and suggested shared-utility services which significantly influenced the services selection and prioritization in this deliverable. The State HIE CAP will need to remain a prominent consideration moving forward, especially as the ONC releases further details regarding HIE meaningful use. Other preliminary service considerations include:

- Beyond the first-tier of services, Wisconsin's SLHIE should consider other services close to the first-tier such as Advanced Directives Management, Diagnostic Results Reporting, and the Immunization Registry. This consideration is based on the need to obtain early milestones to comply with the ONC's requirements. These services meet the compliance need and could provide an opportunity for Wisconsin's SLHIE to demonstrate early success.
- EHR provisioning as a service was initially included as a service option in the HIE Capabilities Survey, but only a few physicians responded to the survey. Despite the high EHR adoption rate among physicians within the state, a need may exist to provide this service and merits further evaluation in Phase 2.



- Other factors, such as the exchange's eventual technical architectural model will affect both the patient/population health and shared-utility services. An example of this includes the use of a RLS, which is prevalent in a federated or hybrid architectural model. Depending on the selected architectural model, this shared-utility service may be necessary. Further, dependencies exist among a number of the patient/population health services, which will influence sequencing and the logical bundling of services to leverage commonalities and maximize any investments.