12 WISHIN Evaluation Plan

The following section outlines the WISHIN Evaluation Plan.

12.1 Executive Summary

Section 3013 of the HITECH Act requires ONC to conduct a national-level program evaluation. As part of the national-level evaluation, states must provide ONC with annual state-level evaluations. ONC will provide documented lessons learned, technical assistance, and program guidance based on the results.

12.2 Aims of Wisconsin's Program Evaluation

WISHIN will use CAP funding to facilitate a program evaluation in Wisconsin that will:

1) Describe the approaches and strategies used in Wisconsin to facilitate and expand HIE. These approaches and strategies will include the priority areas as noted in the 2012 PIN as well as other areas appropriate for Wisconsin.

2) Identify conditions that support and hinder implementation of Wisconsin's strategies.

3) Analyze HIE performance for each of the PIN priorities.

4) Assess how the approaches and strategies, including policy and purchasing levers, used in Wisconsin contributed to progress toward the goals, including lessons learned.

12.3 Success for WISHIN and HIE in Wisconsin is…

WISHIN's vision provides the framework for Wisconsin's program evaluation:

> **Vision:**
> To promote and improve the health of individuals and communities in Wisconsin through the development of information-sharing services that facilitates electronic delivery of the right health information at the right place and right time, to the right individuals.

The four key goals that will be evaluated include:

1) Ensuring health care providers in Wisconsin are exchanging health information electronically.

    a) Reducing the number of prescribers in Wisconsin that cannot accept electronic prescriptions.

    b) Reducing the number of laboratories in Wisconsin that cannot electronically deliver structured lab results.

    c) Providing all physicians in Wisconsin with an option for electronically exchanging clinical summary information with other health care providers.

2) Providing value to our customers in a way that promotes and ensures WISHIN sustainability and, thus, the sustainability of HIE services statewide.

3) Protecting patient privacy while implementing HIE.

4) Removing barriers to HIT and HIE adoption and use by Wisconsin health care providers and consumers.

Another WISHIN long-term goal is to endure that data exchanged via WISHIN from EHR systems statewide will be available to authorized entities for measurement of health care quality, determinants of health, and trending/magnitude measures of health disparities. Evaluating this goal will not be possible in the early years of the statewide HIE; however, it will be important to keep this long-term goal in mind for future evaluations.

12.4 Approach

WISHIN, as a grantee, is required by the Office of the National Coordinator for Health Information Technology (ONC) to complete a federally-required state level evaluation. WISHIN contracted with the University of Wisconsin-Madison Population Health Institute (UW PHI) to conduct this evaluation.

The ONC released a Program Information Notice on February 8, 2012, identifying three program priority areas that state health information exchange program evaluations should assess. These address laboratories participating in delivering electronic structured lab results, pharmacies participating in e-prescribing, and providers exchanging patient summary of care records. For each of these three program priority areas, both access and participation were to be measured.

WISHIN will also be using a Balanced Scorecard approach to evaluate the HIE program in Wisconsin. This approach allows WISHIN to establish success criteria and associate specific measures with those success criteria. It also allows WISHIN to establish annual targets and track progress toward success.

The Balanced Scorecard approach offers several advantages:

1) It allows for both financial and non-financial measures.

2) It provides consistency in how success is measured.

3) It allows for a repeatable process.

4) While the Scorecard itself records annual progress toward the goals, the measures can be collected more frequently, allowing WISHIN leadership to quickly respond if a "course adjustment" is needed.

5) It is agile enough to accommodate changes in direction, new information, new technologies, etc., without compromising the overall criteria for success.

The process that WISHIN will follow for continuous evaluation using the Balanced Scorecard is as follows:

- Step 1: Identify success criteria for all evaluation areas.
- Step 2: Identify specific indicators for each success criterion.
- Step 3: Identify measures for each indicator.
- Step 4: Set targets for the next year.
- Step 5: Continually collect measures toward the targets (see Evaluation Methods below).
- Step 6: Record end-of-year actual measures.
- Step 7: Repeat Steps 4-6 every year.

12.5 Evaluation Methods

To date, only an evaluation of Wisconsin's baseline for each of the three program priority areas has been conducted. Future evaluation plans will consider the effect WISHIN's statewide HIE has had on these priority areas. Several factors led to a delay in implementation of WISHIN Pulse, originally scheduled for March 2013. The current go-live dates for WISHIN Pulse participants range from May to July 2013 for the Pulse interface and from June to August 2013 for the end users.

This evaluation includes an analysis of available qualitative and quantitative data to determine Wisconsin's performance for each of the PIN priorities. Included is information from discussions with nine health systems about their perceived need for a health information exchange (HIE); the way in which information is currently exchanged within their health system and with other systems; their interaction with WISHIN; and their future plans to use an HIE. Since WISHIN Pulse has not yet been implemented, we are unable to discuss the experience health systems have had with this product.

Our analysis of surveys and other data sources, as well as interviews with health systems, indicates that:

- With the implementation of WISHIN Direct in 2011,
  - 100% of pharmacies in Wisconsin are capable of e-prescribing,
  - 100% of providers in Wisconsin are capable of electronically exchanging summaries of care, and
  - 100% of laboratories in Wisconsin are capable of delivering lab results electronically;
- As of February 2013, 92% of pharmacies were capable of receiving e-prescriptions on the Surescripts network;
- Wisconsin providers and hospitals electronically exchange care summaries both within and outside of their health system at a higher rate than the national average;
- Nearly 87% of all lab organizations used electronic means to deliver test results and for those delivering results outside their organization, 93% reported using electronic means; and
- 27.5%of Wisconsin laboratories currently deliver lab results in a structured format.

Qualitative Evaluation Methodology and Findings

Qualitative open-ended interviews were conducted to provide additional data for each of the three program priority areas. Interviews were conducted with representatives of nine health systems throughout the state during January to early March 2013. Representatives of four additional health systems will be interviewed in the remainder of March and April 2013.

These interviews included health systems at varying stages of participation with WISHIN. Five are in the process of contracting with WISHIN to implement WISHIN Pulse and four are in the process of determining whether they want to participate in the state HIE. Interviews were conducted with both health information technology executives and, in most cases, with medical executives. Thirteen questions were asked covering use and opinions of health information exchanges (HIEs), implementation challenges with HIEs, electronic health record (EHR) functionality, patients' electronic access to health records and confidentiality concerns, progress toward meaningful use, and their experiences with WISHIN.

EHR Adoption and Meaningful Use

There is a high level of EHR adoption and achievement of meaningful use in Wisconsin.

- Eight of nine health systems interviewed had received stage one meaningful use incentives for both their hospitals and their eligible providers. The other health system interviewed had achieved stage one meaningful use for all hospitals contracted to implement WISHIN Pulse, with other member hospitals in various stages of attestation.
- Eight of nine health systems reported a high level of functionality with their EHRs, stating they were capable of generating e-prescriptions, referrals, problem lists, and clinical notes.
- Five of nine health systems indicated capability within their EHR for imaging.
- Seven of nine health systems reported the ability to accept structured lab results through their EHRs.
- Eight of nine health systems noted that the majority, if not all, of their patient records were electronic.
- Seven of the nine health systems indicated that patients had access to their health records electronically.
- All health systems reported minimal confidentiality concerns from patients surrounding exchange with outside providers. A Chief Medical Officer at a small suburban hospital stated:

  > *We have very few patients that are leery about having their records accessible. Most patients are very happy about the fact that I can be in my clinic and go online and access their records. I've actually never had anyone say that's bad.*

Use of Existing HIE Capabilities

There are three HIEs in Wisconsin outside of WISHIN: Epic Care Everywhere, HIE Bridge, and Wisconsin Health Information Exchange (WHIE).WHIE is sunsetting in 2013. The two remaining HIEs only have the ability to cover a portion of providers in Wisconsin, as they are linked through EHR systems. For this reason, health systems are considering WISHIN as a solution for electronic connectivity to providers in the entire state.

Health systems interviewed currently have varying levels of HIE participation.

- Two health systems are using two HIEs: WHIE and Epic Care Everywhere.
- Four health systems are using one HIE: WHIE or Epic Care Everywhere.
- Three health systems are not using an HIE; two of these health systems are contracted to implement WISHIN Pulse in 2013 and one is not.
- Three of nine health systems noted that a regional or state-to-state health information exchange, rather than a statewide HIE, would allow for greater improvements in patient care coordination.

All health systems currently using health information exchanges reported that since implementation of their HIE, providers have noted the following positive outcomes: less duplication of medical tests, less time spent gathering patient data and reaching diagnosis, lower medical errors, lower hospital readmissions, and increased identification of prescription drug abuse in patients. All health systems reported that they believed continued use of HIEs and/or a statewide HIE could show improvements in quality of care, patient safety, and reducing healthcare costs. When asked how health information exchanges could be used to address disparities in access to health care, a VP of Clinical Integration at a large metropolitan area health system stated:

> *Well I think, from a clinical perspective, one of the things we've found with the WHIE integration is the ability to interface in a timely and efficient way among other systems to provide a really good quality of care for patients that are being seen in the ED. For me, there's also a safety component to that, so we're not repeating some of the medications that have been given to them in the past. Last but not least, it also helps manage resources so we're not giving an MRI that was done last week.*

Perceptions of WISHIN

All health systems reported that WISHIN Pulse will not be useful unless it works well immediately and providers see value in it. Health systems reported that WISHIN Pulse needs to be well integrated into provider workflow with a well-functioning intuitive interface, or it will be challenging to encourage clinicians to continue to use it.

- Seven of the nine health systems stated that WISHIN had conducted several informational sessions with them. Those expecting to implement WISHIN in 2013 noted that the process of working with WISHIN through the pre-implementation stages was not challenging or difficult.
- Seven of nine health systems noted that data standards would be an important facet to the usefulness of a statewide health information exchange to maintain the value of the patient information that would be exchanged between providers.

Several health systems interviewed have chosen to delay implementation of WISHIN Pulse. Those systems gave a variety of reasons for their decisions. First, the health systems want to ensure that the product works. Second, the health systems want to ensure that there are data already in the product for their providers to access. Third, there is ongoing discussion about ensuring patients' privacy rights in having other providers access the data. Fourth, some health systems that planned to be part of the initial group of users now question whether WISHIN Pulse is needed; they anticipate their electronic health record (EHR) provider will be able to serve as a connection to a health information exchange.

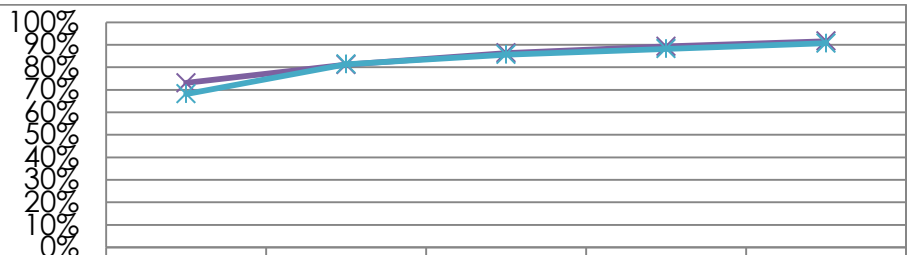
Qualitative Interviews with health systems in Wisconsin so far reveal some uncertainty about WISHIN's future success in achieving widespread adoption of the statewide HIE. All health systems identified concerns over the financial sustainability of a statewide health information exchange in the long-term. However, these interviews also revealed a strong commitment to health information technology, a desire to improve patient quality of care through increased exchange of electronic health information, and a belief that a statewide health information exchange would be beneficial to the State of Wisconsin.

Pharmacy Evaluation Methodology and Findings

Pharmacy participation in electronic prescribing in Wisconsin was evaluated using data from the Surescripts network. While it is the most popular, it is not the only network for sending and receiving electronic prescriptions. Therefore, the information presented is only an estimate and may not include all prescribers or pharmacies that are actively processing electronic prescriptions. With the implementation of WISHIN Direct in 2011, 100% of pharmacies in Wisconsin are capable of e-prescribing.

During the month of December 2008, 73% of all Wisconsin pharmacies were connected to the Surescripts network and were capable of receiving e-prescriptions (enabled pharmacies). The number has steadily increased since 2008 and during the month of December 2012, had reached 92%. Similarly, during the month of December 2008, 68% of all Wisconsin pharmacies had processed at least one electronic prescription (active pharmacies) with the number increasing to 91% during the month of December 2012. The most recent data available from the month of February 2013 show that the percentage of enabled pharmacies remains at 92%, and the number of active pharmacies has increased to 92%.

Wisconsin Pharmacies' Electronic Prescription Use



	Dec 08	Dec 09	Dec 10	Dec 11	Dec 12
WI pharmacies capable of receiving electronic prescriptions using Surescripts network	73%	81%	86%	89%	92%
WI pharmacies with at least one processed e-prescription during the month using the Surescripts network	68%	81%	86%	88%	91%

There were 12,481 unique prescribers who were actively e-prescribing on the Surescripts network in December 2012. Wisconsin has seen a steady increase in the number of e-prescribers since December 2008 when there were 1,085. The percentage of total prescribers in Wisconsin who are e-prescribing is not reported, as an accurate denominator is not readily available.

Electronic Care Summary Exchange Evaluation Methodology and Findings

Wisconsin-specific results from national surveys, as well as information received from qualitative interviews with nine health systems, indicate that Wisconsin providers and hospitals electronically exchange care summaries both within and outside of their health system at a level higher than the national average. The implementation of WISHIN Direct in 2011 has given 100% of providers in Wisconsin the capacity to exchange electronic summaries of care.

The evaluation team intended to use a survey conducted by the University of Wisconsin (UW) Survey Center to establish a baseline for providers electronically exchanging care summary records with other providers within and outside of their organizations. The survey looked at Wisconsin's office-based physicians (via clinics) to determine health information technology (HIT) adoption, HIE participation and capacity (care summary, lab orders/results, e-prescribing), information on EHR systems, and HIE barriers. In 2012, almost 1,000 surveys were mailed to Wisconsin clinics. While 2,687 clinics were identified in the state, surveys were only sent to the main facility for any health system with more than one clinic.

A total of 366 responses were received from the clinic survey. These were determined not to be a representative sample of hospitals and clinics throughout the State of Wisconsin. For example, five major metropolitan area health systems responding to the clinic survey included information for only one clinic out of many in their systems. Five major metropolitan area health systems were also identified as not having completed the survey. The survey responses showed a significantly lower number of electronic care summary exchanges and EHR use than what has been demonstrated in the current and previous years' National Ambulatory Medical Care Survey (NAMCS) and the American Hospital Association Annual Survey Information Technology Supplement (AHA HIT) surveys.

WISHIN Direct participant care summary exchange data were also unable to be included in the evaluation. WISHIN is unable to track whether care summaries are being exchanged between providers using WISHIN Direct due to product protocol surrounding secure messaging.

For these reasons, the baseline for electronic care summary exchange among outside providers was developed using NAMCS and the AHA HIT surveys. Qualitative interviews were used to supplement these data.

The 2011 AHA HIT survey for Wisconsin found that:

- 44% of hospitals were sharing electronic care summaries with providers outside of their system;
- 35% of hospitals were sharing electronic care summaries with hospitals outside their system; and
- 38% of hospitals were sharing electronic care summaries with ambulatory providers outside of their system.

The 2011 NAMCS survey found that in Wisconsin, 61% of ambulatory providers are electronically sharing care summaries with other providers. Wisconsin is significantly above the national average, ranking on the high end of the upper quartile for all states for the referenced AHA HIT measures and the NAMCS measure on electronic care summary exchange.

Qualitative interviews revealed that all health systems are exchanging care summaries electronically in some capacity with, as expected, more of the exchanges occurring among providers within the same system or affiliated with the same HIEs.

- While all health systems reported use of specific continuity of care documents (CCDs) to exchange information with both outside and within-system providers, all stated that actual exchange of such documents had so far been minimal.
- All health systems reported a variety of ways in which patient information was being exchanged with outside providers, including HIE, fax, mail, and email.
- Five of nine health systems reported that long term care providers were the largest outside provider with which they engaged in the exchange of patient data.
- WISHIN Pulse was identified by seven of the nine health systems as the only current option in the state to meet the stage two meaningful use objective of

sharing electronic care summaries with providers using different vendors for their EHR systems.

The evaluation of data on electronic exchange of care summaries demonstrates that Wisconsin providers are engaged in this priority area. Survey data found that hospitals and ambulatory providers in the state are both exchanging electronic patient care summaries with providers outside of their system at much higher rates than the national average. Qualitative interview findings also supported this commitment to increased HIE adoption in Wisconsin to enable providers to coordinate patient care more efficiently.

Laboratory Evaluation Methodology and Findings

In Wisconsin, laboratories are using electronic means to deliver test results at high rates both inside and outside of their organizations. With the implementation of WISHIN Direct in 2011, 100% of laboratories have the ability to deliver results electronically. However, this commitment to electronic delivery of lab results has still not led to high rates of Wisconsin's laboratories' participation in delivering structured lab results using Logical Observation Identifiers Names and Codes (LOINC).

Two data sets were used in this analysis: data from mail questionnaires sent to all laboratories in Wisconsin by the UW Survey Center, and a WISHIN follow-up phone survey that included non-responding labs and a handful of responding labs. WISHIN developed a database that incorporated data from the phone survey into the mail survey data. The analysis is based on the assumption that each laboratory organization with multiple sites used the same Laboratory System (software for lab processes such as LIS, LIMS, or an EHR with a lab module) for each lab site.

<u>UW Survey Center's Mail Survey Methods and Respondent Demographics</u>

A laboratory survey was conducted in spring 2012 by the UW Survey Center:

- 277 questionnaires were mailed to lab managers representing 779 individual labs;
- 174 questionnaires were returned representing 516 individual labs, which included 392 multi-site labs from 50 organizations and 124 single-site labs;
- For the largest two organizations with multiple laboratories, one had 116 lab sites, and the other had 33 lab sites;
- 27 organizations with multiple sites had only two or three lab sites;
- There are no veterans' organizations, blood/plasma banks, or cryobanks among the 174 respondents; and
- As with the clinic survey, some well-established health systems did not respond to this survey.

Approximately 75% of the respondent laboratories were equally distributed among three of Wisconsin public health regions: west, south, and southeast. The remaining 25% were equally distributed in the north and northeast regions. Outside of the Marshfield Clinic, most of the laboratories were located around three metropolitan areas: Milwaukee, Madison, and Green Bay.

Lab type and testing methods included:

- The majority of respondent laboratories were hospital/clinic laboratories (92%, n=158). The remaining 14 laboratories were reference labs that were separate from hospitals/clinics or public health labs.
- Of all surveyed clinical testing labs, 79% (N=133) did mostly clinical diagnostic testing, and the rest of the laboratories did a combination of clinical and pathological testing.
- A total of 71% (N=121) of all clinic laboratories also did tests for providers that were not part of their organization. Forty-eight organizations that delivered test results outside their organization have automatically loaded more than 75% of test results into the EHR systems of the providers.
- Nearly 87% of all lab organizations delivered test results electronically. Among those delivering results outside their organization, 93% reported using electronic means to deliver test results.

Analysis of the UW Survey Center's Mail Survey

The non-response rates for the mail survey questions related to information messaging and standardized codes for electronic delivery of structured lab results were high, with 30 to 40 non-responding labs for each question of this type. There are several methods for electronic delivery of structured lab results, but the use of LOINC codes to deliver results has been the initial focus of assessment in Wisconsin.

A total of 134 respondents answered a question about the use of LOINC; only 121 respondents who delivered outside lab results were included in this analysis:

- 23 had LOINC in 2011;
- 37 reported having LOINC by 2012; and
- 52 expected to have LOINC by 2014.

WISHIN's Phone Survey

WISHIN staff contacted 759 individual labs to conduct a short phone survey in fall 2012. These phone surveys continued into 2013 with the last updates occurring in March 2013. Questions focused on lab and testing types, Laboratory System information, structured results and results delivery methods. WISHIN then combined this information with the data from the mail survey into one database.

Analysis of WISHIN's Combined Database

The purpose of the combined phone survey and mail survey data analysis was to estimate the baseline and to more accurately monitor the progress of labs electronically delivering structured test results. In addition to calculating the number of labs that could not deliver structured test results, information from responding laboratories was used to estimate the whitespace for the non-responding labs in order to obtain a picture of the lab system capacity for all Wisconsin laboratories.

Both surveys included questions about affiliated health system, type of testing, type of labs, delivery of results to outside organizations, LIS system/vendor, and LOINC. The

phone survey data also included organizational information for each individual lab, such as federal laboratory testing regulations, the Clinical Laboratory Improvement Amendment (CLIA) numbers, type of CLIA certificate, type of CLIA laboratory, and address. The mail survey could not distinguish individual labs within each organization, but this information was included in the phone survey.

This WISHIN-constructed database included 759 labs. A total of 35% of these labs were excluded from the analysis:

- 20 labs without any response to key questions such as type of labs, type of testing conducted in the labs, conducting tests for outside organizations, electronic lab systems, and standard codes used in lab test names (e.g., LOINC);
- 21 veterans' organizations;
- 62 labs that did not do clinical testing or were classified as a blood, plasma or cryobank; and
- 173 labs with no outside delivery or no response to the question regarding delivery of results outside the organization.

These exclusions left a sample of 483 individual labs delivering test results outside of the organization.

The WISHIN database showed that of 483 responding laboratories, 115 reported having LOINC. Using LOINC to estimate a lab's ability to deliver structured results, 24% (N=115) of labs are delivering structured results outside of their organizations.

An additional component of WISHIN's database was a listing of lab information for the 43 hospitals and clinics that have contracted to use WISHIN Pulse as of March 2013. WISHIN Pulse, using LOINC, is capable of delivering structured lab results. Of 43 hospitals and clinics, 26 are matched in the WISHIN lab database. Thus, it is estimated that 141 labs from these 26 hospitals and clinics are able to deliver structured lab results. This information was incorporated into the 2014 analysis.

Whitespace and Baseline Conclusions

The table below shows the analysis of labs that are electronically delivering structured lab results; this analysis includes the years 2012, 2013 and 2014. To estimate the whitespace and baseline for all the labs in the state using 2013 data, extrapolation is needed for the 20 non-responding labs. The percentage of responding labs removed from the analysis (35%) and the percentage of responding labs using LOINC coding to send structured lab results (24%) were both applied to the non-responding lab sample. In this sample115 of 483 labs from the phone survey used LOINC coding.
Using this methodology we found 24% of Wisconsin labs (N=118) delivering structured lab results outside of their organizations in the baseline, leaving 76% (N=378) of laboratories in Wisconsin in the whitespace.

If these data are an accurate reflection of the engagement in delivering results in a structured format in Wisconsin, the lower rates could be due to challenges for labs in implementing LOINC within their Laboratory Systems. Few laboratories identify as a system standard that they send results via LOINC. The two national lab organizations

that operate within Wisconsin, Dynacare/Lab Corp and Quest Diagnostics are an exception. Both use LOINC to deliver all test results in a structured format to Wisconsin providers and health systems.

These numbers could also be influenced by the highly technical nature of the questions asked regarding coding and messaging standards. Low response rates were seen for these questions in the UW Survey Center mail survey. Overall, the accuracy of this whitespace number depends on the understanding the survey respondents, lab managers and administrators had of LOINC questions.

To evaluate Wisconsin laboratories' delivery of structured results over time, the same methodology was applied to calculate data for 2012 and 2014 with a few key differences.

For the 2012 analysis:

- Phone survey data that was current in December 2012 was used;
- Mail survey data were based on reported LOINC implementation through 2011; and
- 16% (N=83) of labs were sending structured lab results, leaving the whitespace comprised of 84% of labs (N=84).

For the 2014 analysis:

- Phone survey data current in March 2013 were used in the analysis, with a supplemental list of contracted WISHIN Pulse participants' lab information;
- Mail survey data were based on reported LOINC implementation through 2014; and
- 29% (N=145) of labs were sending structured lab results, leaving the whitespace comprised of 71% (N=351) of labs.

The data demonstrate a steady increase in the delivery of structured test results since 2012, with an expected increase from 24% to 29% in the percentage of Wisconsin laboratories included in the baseline by 2014. While rates are on the lower end for this priority area, this yearly increase highlights Wisconsin laboratories' engagement in adopting LOINC as a standard method to deliver structured results to outside organizations.

Estimation of Structured Test Result Delivery and Whitespace, WISHIN Surveys (with Mail Survey)									
	(1) **Fall 2012** [a]			(2) **Early 2013** [b]			(3) **By 2014** [c]		
Total # of Labs Surveyed	759			759					
# lab responders	642			739					
# lab non-responders	117			20					
Responding Labs	642			739			739		
# responding labs removed from baseline	217		34%	256		35%	256		35%
No outside delivery		162	75%		173	68%		173	68%
No clinical testing, blood banks or cryobanks		34	16%		62	24%		62	24%
Veterans' organization		21	10%		21	8%		21	8%
# of labs that responded and remained in the baseline	425		66%	483		65%	483		65%
# responding labs sending structured lab results		70	16%		115	24%		141	29%
# responding labs NOT sending structured lab results ("white space")		355	84%		368	76%		342	71%
Extrapolation for Non-Responding Labs [c]	117			20			20		
# non-responding labs removed from baseline	40		34%	7		35%	7		35%
# labs that did not respond but remained in the baseline	77		66%	13		65%	13		65%
# non-responding labs sending structured lab results		13	16%		3	24%		4	29%
# non-responding labs NOT sending structured lab results ("white space")		65	84%		10	76%		9	71%
Total # Labs Removed From Baseline	257			263			263		
Total # Baseline Labs	502			496			496		
Total # Baseline Labs Sending Structured Lab Results (extrapolated)		83	16%		118	24%		145	29%
Total # Baseline Labs that Do Not Send Structured Lab Results ("whitespace" with extrapolated non-responding lab data)		420	84%		378	76%		351	71%

a. Data source: WISHIN phone survey, fall 2012.
b. Data source: WISHIN phone survey, winter 2012-2013.
c. Data Source: WISHIN phone survey (winter 2012-2013) and a list of contracted participant organizations of WISHIN Pulse, http://www.wishin.org/Products/WISHINPulse/Participants.aspx (retrieved on March 24, 2013).

Public Health Reporting

Electronic reporting of public health information for immunization registries, syndromic surveillance (reporting of medical data to public health to assist in detecting disease outbreaks), and reportable lab results was analyzed. The laboratory survey sent out by the UW Survey Center included three questions about public health reporting; however, given the low and inconsistent response rates on these questions, they were not included in this analysis. For this reason, data for 2011 and 2012 were provided by the Wisconsin Division of Public Health (DPH). These data are included in the tables below.

For all three focus areas, Wisconsin showed a sizeable increase in the amount of public health data transmitted electronically between the data years 2011 and 2012. In 2012 increases were seen in the number of test messages being sent to the Wisconsin Immunization Registry (WIR), DPH, and the Wisconsin State Lab of Hygiene (WSLH) so both eligible hospitals and eligible providers could meet objectives for meaningful use stage 1. Ongoing electronic data submission for the immunization registry, syndromic surveillance and reportable lab results also demonstrates that eligible hospitals and eligible providers in Wisconsin are making progress toward meaningful use stage 2 for public health objectives.

It is important to note that technological improvements need to be made to continue to facilitate increased electronic public health reporting that meets meaningful use standards. DPH found inconsistencies in data submission through an HIE, certified EHR technology, and HL7 messaging standards.

In qualitative interviews, eight of nine health systems reported that the majority of their public health reporting was being done electronically, but that there were a variety of systems and workflow processes that needed to be completed to accomplish this task. The use of WISHIN Pulse for more integrated electronic public health reporting was identified as an important component that a statewide health information exchange could provide to improve these workflow processes for providers.

Electronic Transmission of Public Health Data

Wisconsin Immunization Registry (WIR) Data	2011	2012
All methods*	5,941,081 immunization records	6,536,213 immunization records
Real-time HL7 electronic message transmission**	453,214 (8%)	2,365,540 (36%)
Data loads from Medicaid, user interface data entry, flat file loads, HL7 batch file loads, and vital records birth file loads***	5,487,867 (92%)	4,170,673 (64%)
Attested that they submitted a test message to WIR as part of an EHR incentive program****	1,176 eligible professionals and 9 hospitals	4,055 eligible professionals and 59 hospitals

*No records were sent via an HIE.
**Conforms to meaningful use electronic transmission requirements.
***Does not conform to the meaningful use electronic transmission requirements.
****Number of eligible professionals is not a final number for 2012 because Medicaid is still processing 2012 meaningful use attestations.

Syndromic Surveillance Data	2011	2012
Records submitted to DPH through the Wisconsin Health Information Exchange (WHIE)*	934,554	1,224,527
Attested that they submitted a test message to DPH as part of an EHR incentive program**	46 eligible professionals and 6 hospitals	168 eligible professionals and 19 hospitals

*Not all data submitted through WHIE were from certified EHR technology.
**Number of eligible professionals is not a final number for 2012 because Medicaid is still processing meaningful use attestations.

Electronic Lab Reporting	2011	2012
Reportable lab results were submitted to the State Division of Public Health either through the local health Department, the Wisconsin Electronic Disease Surveillance Web interface, or through the Wisconsin State Lab of Hygiene (WSLH)	215,374	277,174
Hospitals selected this meaningful use menu set measure and sent test message using certified EHR technology	0	3
Hospitals labs were submitting meaningful use conformant HL7 2.5.1 messages to the WSLH*	0	0
Labs reporting via an electronic interface with the WSLH's Electronic Lab Reporting (ELR) hub or via the WSLH's Web-based Lab Reporting (WLR) portal	198,552 (92%)	265,012 (96%)

*All messages were sent using HL7 version 2.3.1.

Future Evaluation Measures

Future quantitative evaluation measures have not been fully determined for the three program priority areas of pharmacy, lab, and care summary exchange. Qualitative interviews will be conducted again with the same 13 health systems following the 2013 go-live dates for WISHIN participants. The evaluation group and WISHIN will establish guidelines for how progress should be measured from that point on. Care summary exchange is the focus area for Wisconsin, so any future evaluation criteria will be sure to address this identified priority area for the state.

12.6 Wisconsin's Balanced Scorecard

In reviewing this scorecard it is important to note that many measures for 2012 did not have any data or 2013 targets set due to the delay in implementation of WISHIN Pulse until summer 2013.

1. Ensuring that data exchanged between EHR systems statewide using WISHIN services will be available to authorized entities for measurement of health care quality, determinants of health, and trending/magnitude measures of health disparities.				
Indicators	**Measure**	**2012 Target**	**2012 Actual**	**2013 Target**
1a: Quality organizations in Wisconsin are receiving data for quality measures through WISHIN.				
I.	Number of Wisconsin quality organizations connected to the SHIN.	0	No data	No target
II.	Number of entities sending data via WISHIN to connected quality organizations for measurement of health care quality.	0	No data	No target

1b: Public Health reportable lab results are being sent to Wisconsin's Division of Public Health electronically.				
I.	Percentage of Public Health reportable lab results sent via the SHIN.	0%	No data	No target
II.	Percentage of Public Health reportable lab results sent to the Division of Public Health electronically.	75%	96%	97%
1c: Public Health syndromic surveillance data is being sent to Wisconsin's Division of Public Health electronically.				
I.	Percentage of hospital EDs electronically sending syndromic surveillance data to Public Health.	No goal set	41%	41%
II.	Percentage of hospital EDs electronically sending syndromic surveillance data to Public Health via the SHIN.	40%	No data	41%
III.	Percentage of office-based providers/clinics electronically sending syndromic surveillance data to Public Health via the SHIN.	0%	No data	No target

1d: Immunization data is being sent to the Wisconsin Immunization Registry (WIR) electronically.				
I.	Percentage of immunizations being sent to WIR electronically (not via data entry through the WIR user interface or via flat-file data load and uploaded to the WIR website – must be HL7 batch messages directly from a EMR system or HL7 real-time transactions directly from an EMR system).	60%	36%	45%
II.	Percentage of Immunization data being sent to WIR via the SHIN.	0%	No data	No target

Current Data Considerations:

1) Delay in implementation of WISHIN Pulse until summer 2013 allowed for no measurable data in quality or public health reporting via the SHIN. No targets for 2013 have been set, since the initial focus of WISHIN Pulse during implementation in 2013 will be data exchange for lab results and medications.

2) Public Health reporting was evaluated through data received from DPH on electronic submission of reportable results, syndromic surveillance and immunizations. Questions were also asked about this on the laboratory mail survey, but inconsistent responses to these questions made them an unreliable measure for public health reporting in the state.

3) Increases in WIR immunizations and reportable lab results being sent to DPH electronically were projected based on recent years' data trends. Syndromic surveillance data are projected to remain at the same levels for 2013 as all hospital EDs that were providing this service through the WHIE are transitioning to WISHIN.

4) Reportable lab results being sent to DPH electronically include all data from both Wisconsin State Lab of Hygiene's electronic reporting hub and its web -based portal.

Future Key Questions:

1) Will WISHIN help Wisconsin's quality organizations measure health care quality throughout the state?
2) Will disparities in health care outcomes and access be identified more efficiently and more effectively because of WISHIN?
3) Will using the SHIN for quality reporting simplify the reporting process for physicians and hospitals?
4) Will using the SHIN for public health reporting simplify the reporting process for physicians and hospitals?
5) What role and impact will HIE governance and policy or purchasing levers have in enabling the quality and public health reporting process using HIE?

2. Protecting patient privacy while implementing health information exchange.				
Indicators	**Measure**	**2012 Target**	**2012 Actual**	**2013 Target**
2a: WISHIN's HIE operations will have no HIPAA privacy breaches.				
I.	Number of breaches.	0	No data	0

Current Data Considerations:

1) Delay in implementation of the WISHIN Pulse until summer 2013 allowed for no measurable data on privacy breaches via the SHIN.

Future Key Questions:

1) Are consumers adequately informed about HIE? Can more be done to better inform them?
2) Will WISHIN HIE participants have security measures in place to ensure that no HIPAA privacy breaches are occurring?
3) What do consumers see as the benefits of HIE?
4) What concerns do consumers have about HIE?

3. Ensuring health care providers in Wisconsin are exchanging health information electronically.				
Indicators	**Measure**	**2012 Target**	**2012 Actual**	**2013 Target**
3a: Pharmacies in Wisconsin can accept electronic prescriptions.				
I.	Percentage of pharmacies in Wisconsin capable of accepting e-prescriptions.	99%	100%	100%
II.	Percentage of Wisconsin pharmacies connected to the Surescripts capable of receiving e-prescriptions (enabled pharmacies)	No goal set	92%	94%
III.	Percentage of Wisconsin pharmacies on the Surescripts network processing at least one e-prescription (active pharmacies).	No goal set	91%	93%
IV.	Percentage of pharmacies in Wisconsin that can accept e-prescriptions of controlled substances.	0%	No data	No target

3b: Prescribers in Wisconsin can send electronic prescriptions.				
I.	Percentage of prescribers in Wisconsin capable of sending e-prescriptions.	100%	100%	100%
II.	Percentage of prescribers in Wisconsin that can send e-prescriptions of controlled substances.	0%	No data	No target
3c: Labs in Wisconsin can send structured lab results electronically to providers.				
I.	Wisconsin labs have access to sending lab results electronically to providers.	100%	100%	100%
II.	Percentage of labs using electronic means to deliver results.	No goal set	87%	90%
III.	Percentage of labs in Wisconsin that can deliver structured lab results electronically to physicians.	No goal set	24%	29%

3d: Providers in the state are able to receive lab results electronically and incorporate those results as discrete data into their EHR systems.				
I.	Percentage of providers who are able to receive lab results electronically and incorporate those results as discrete data into their EHR system.	No goal set	76%	83%
3e: Providers in Wisconsin have an HIE option available (whether it is by affiliating with one of the existing sub-state HIEs or by using WISHIN Direct) to exchange a care summary with a physician not associated with their organization (legal entity).				
I.	Percentage of providers who have an HIE option available to exchange a care summary with a physician outside their legal organization.	100%	100%	100%
II.	Percentage of providers who have an HIE option available to exchange a care summary with a physician outside their legal organization that is using a different vendor's EHR technology.	100%	100%	100%

3f: Providers and health systems in Wisconsin are participating in state-wide health information exchange.				
I.	Number of providers using WISHIN Direct.	435	778	800
II.	Number of WISHIN Connect HISPs.	2	No data	No target
III.	Numbers of physicians participating in an existing sub-state HIE in Wisconsin.	8,350	No data	No target
IV.	Number of existing sub-state HIE's connected to the SHIN.	1	No data	No target
V.	Number of physicians (MDs and DOs) participating in the SHIN.	500	No data	No target
VI.	Number of hospitals participating in the SHIN.	51	No data	58
VII.	Number of eligible professionals (non-MDs and non-DOs) participating in the SHIN.	0	No data	No target
VIII.	Number of laboratories participating in the SHIN.	10	No data	No target
IX.	Number of pharmacies participating in the SHIN.	0	No data	No target

Current Data Considerations:

1) Delay in implementation of the WISHIN Pulse until 2013 allowed for no measurable data on participants for the SHIN. No 2013 participant targets for this implementation year outside of hospitals contracted to implement WISHIN Pulse for clinical data and/or public health reporting were set.

2) Delay in implementation of e-prescribing of controlled substances in Wisconsin until 2013 allowed for no measurable data in this area.

3) A 2013 goal in WISHIN Direct participants was set due to a steady increase in Direct customers since its implementation in 2011.

4) Pharmacy data for active and enabled pharmacies was taken from December 2012 Surescripts network data. Target goals for 2013 predict an increase in both active and enabled pharmacies due to consistent gains of at least two percent each year since 2010.

5) Current standards for structured data focus on LOINC coding, but Wisconsin has low rates of delivering test results in this fashion. A small increase in labs sending structured results via LOINC was set for 2013 due to meaningful use objectives and more laboratories looking to adopt LOINC for delivering test results.

6) Wisconsin laboratories are engaging in delivering lab results electronically at high rates. A 3% increase in electronic delivery of lab results was set as a goal for 2013 due to increasing adoption rates of Laboratory Systems in Wisconsin. Eight of nine health systems interviewed reported the ability to accept electronic lab results.

7) Number of providers able to incorporate structured lab results into their EHR system as discrete data was based on 2011 data from the NAMCS survey for physician EHR adoption rate in Wisconsin. Target for 2013 is based on NAMCS's preliminary 2012 survey results. Six of nine health systems interviewed reported the ability to accept these results as structured data that could be incorporated into their EHR system.

8) Data representing an accurate current number of physicians practicing in Wisconsin have been difficult to obtain for both pharmacy and HIE goals. Therefore, no comprehensive goals have been set for providers in these two areas.

Future Key Questions:

1) Are providers accessing medication history information via the HIE? If so, how often?

2) Can pharmacies derive value from accessing medication history before dispensing to a customer and provide clinical consultation to the patient?

3) What is the discrepancy rate (or effectiveness) between what was prescribed and what was dispensed? What are the causes of the discrepancy or the effectiveness?

4) Has the HIE contributed to a reduction in the number of duplicate laboratory tests? If so, how?

5) Has the HIE contributed to a reduction in hospital emergency department and inpatient admissions and re-admissions?

6) Are providers satisfied with the ease of use of the HIE?

7) Are providers satisfied that the HIE integrates with their existing workflow?

8) Do providers believe they are able to provide better care as a result of the information they can access through the HIE?

9) If a provider is not participating in the HIE, why not? What are the barriers? What would be needed to encourage the provider to participate?

10) Do providers have concerns about the security of the HIE?

11) Do providers have concerns about the quality of the data in the HIE?

4. Support the development of a sustainable business model for building and maintaining health information exchange in Wisconsin.				
Indicators	**Measure**	**2012 Target**	**2012 Actual**	**2013 Target**
4a: Have the appropriate policies and procedures, including government policy or purchasing levers and legislation, been developed to support the exchange of data via a statewide HIE in Wisconsin?				
4b: Is the technical infrastructure in place and in a maintainable state to support the exchange of data via a statewide HIE in Wisconsin?				
4c: Does the HIE workforce have sufficient training and skills in health information technology to support the development, rollout, and ongoing maintenance and promotion of a statewide health information network?				

Note: Evaluation area #4 (above) requires subjective measures; therefore, no targets have been set. These measures will be reviewed by WISHIN and the evaluation group

as implementation of the state HIE progresses. The key questions/considerations noted below will be tracked and evaluated further to determine if objective measures can be established for this evaluation area.

Future Key Questions:

1) Are policies set by the state-level governing board or state government (including legislation passed) encouraging or discouraging participation in HIE and to what extent?

2) Are the governance processes of WISHIN transparent and inclusive?

3) How engaged is the state-level HIE governing board in advocating and championing HIT and HIE adoption and use by Wisconsin health care providers?

4) Do participants feel involved in the policy-setting and governance processes of the WISHIN?

5) Do participants find the HIE reliable?

6) Do participants believe they get value out the HIE (benefits vs. cost)?

7) Are costs of supporting HIE operations distributed equitably across participants?

8) Do WISHIN staff believe they are adequately trained to support the HIE? If not, what areas need further development?

WISHIN will review the existing evaluation planning and execution efforts, making adjustments and conducting additional assessments as needed. In addition, WISHIN stakeholders will play an important part in helping to determine success criteria and assessing the results and determining "course adjustments" that may be needed to fill any identified gaps.