

HIMSS

Health Information Exchange



HIE Implications in Meaningful Use Stage 1 Requirements

**HIMSS Health Information Exchange
Steering Committee**

March 2010

An HIE Overview

Health Information Exchange (HIE) can be defined in a number of ways. In its most conservative definition, HIE (*the verb*) is the activity of secure health data exchange between two authorized and consenting trading partners. Data exchange occurs between any two trading parties—a data supplier and a data receiver. It can also be facilitated by one, two or more third parties who operate between the data supplier and the data receiver. To add complexity, a third party could also be storing data from and on behalf of the data supplier and be transmitting data on behalf of the data supplier (in such case, the third party would be considered to be the data supplier). Further, a third party could be receiving data on behalf of a data receiver. While this may be complex, HIE activity can enhance virtually any clinical function by virtue of providing a broader set of data upon which clinical decisions can be based.

HIE can take place in one of two basic ways: push or pull. There are many variations on these two methods, but the basic test to determine the method of data exchange is whether data arrives at the data receiver as the result of a request (solicited), or not (unsolicited). This is important because of the key mechanisms that are required to handle data supplied in either of the two ways. For solicited exchanges necessary functions are required at the data receiver to create and transmit the request, and necessary functions at the data supplier to receive, arbitrate, and respond to the request including functions used to discover the subject of the exchange (the patient). Unsolicited exchanges are more straight forward because the data supplier simply pushes data that is identified as having a destination of the data receiver (or copies data to the receiver in the case of subscription messages), and the data receiver need only have the functionality to store and present any unsolicited data in the form it is received.

Health Information Organizations (HIOs) (*the noun*) convene independent stakeholders to form organizations whose primary function is data exchange of personal health information. These entities are growing across the country in various forms including community and state level health information exchanges. Currently, the HIE service vendor landscape is undergoing an evolution in an attempt to meet market demands including offering robust electronic health record (EHR), ‘EHR lite’ systems, and practice management services as part of their HIE functionality. An ‘EHR Lite’ is usually considered a system that contains a subset of EHR functionality and corresponding patient data and does not have the full slate of features and functionality found in robust EHR systems. Today, some of the ‘EHR Lite’ systems are not ‘lite’ and resemble the more robust EHR systems. Some EHR vendors are moving rapidly to get into the HIE service vendor space by offering methods to tie together customers of their products, and more recently, incorporate interfaces to foreign EHR products into their “HIEs.” As a result, the HIO is faced with an interesting decision whether to acquire a third party vendor for HIE, contract with a known EHR vendor who is already well established into the medical data exchange area, or identify a unique or hybrid approach that addresses their organizational specifications.

HIE and Meaningful Use

The table below is focused around discussion of HIE activity as outlined in the NPRM (Notice of Proposed Rulemaking) Meaningful Use Objectives. It considers only the direct or implied requirement that some form of HIE take place to facilitate the objective described in NPRM and does not elaborate on the benefits resulting from HIE. This analysis focuses on the ‘event’ of exchanging data and does not address the actual data exchange mechanism (e.g., direct between two parties or involving a third party and push or pull) that any given provider may need to perform. Further, this analysis focuses solely on the requirement or need for clinical and or demographic data to be supplied from an external source (e.g., receiving a clinical summary from another source upon transition of care), or to be supplied to an external receiver (e.g., electronic claims).

It should be pointed out that the Stage 1 Meaningful Use objectives have been purposefully set to be achievable by providers throughout the country. With that objective in mind, the Centers for Medicare and Medicaid Services have concluded that the availability of HIE *at this time* was not widespread enough, nor were

prospects for its expansion over the next two years, to base a significant number of requirements on the presence of HIE (FR Doc E9-31217, Section II.2.e, Page 1870). Consequently, many of the Meaningful Use objectives stand on their own without an HIE dependency. Approximately 6 to 10 objectives, depending on the provider's circumstances, *implies* some form of HIE. Many of these are likely functions that are already handled electronically, or at least have some form of electronic exchange available (electronic claims, as an example). With that said, it is clear through comments in the NPRM that HIE is a national strategy. The NPRM clearly provides the impression that Phases 2 and 3 will have many more requirements that will rely on robust HIE availability in the country's communities (FR Doc E9-31217, Section II.4. b, Page 1903).

As noted above, there are sections in the American Recovery and Reinvestment Act that imply the broader implications and use of HIE without the necessary rules for HIE implementation. This leaves room for speculation at the present on the next iteration of implementation of HIE in Stages 2 and 3. One example, found in section 13405(e) of the act, states:

“(e) ACCESS TO CERTAIN INFORMATION IN ELECTRONIC FORMAT.— In applying section 164.524 of title 45, Code of Federal Regulations, in the case that a covered entity uses or maintains an electronic health record with respect to protected health information of an individual— (1) the individual shall have a right to obtain from such covered entity a copy of such information in an electronic format and, if the individual chooses, to direct the covered entity to transmit such copy directly to an entity or person designated by the individual, provided that any such choice is clear, conspicuous, and specific; ...”

While reading the Stage 1 NPRM, the reader should keep in mind that future rule making efforts will further define the scope and involvement of health information exchange activities.

HIE Implications in Meaningful Use Stage 1 Requirements

Objective #	Objective	Eligible Provider	Hospital	Measurement (Numerator and Denominator)	HIE Implication
1	CPOE (computerized practitioner order entry)	a. Enter orders for medications, laboratory, radiology, and provider referrals.	a. Enter orders for medications, laboratory, radiology, blood bank, PT, OT, RT, rehab, dialysis, provider consults, and discharge and transfer. Use of CPOE for orders (any type) directly entered by authorizing provider (for example, MD, DO, RN, PA, NP)	Numerator: number of CPOE orders entered for all patients. Denominator: total number of orders issued. Practices must enter 80% of orders by CPOE. Hospitals must enter 10%.	No HIE requirement to achieve MU. The implied functionality is to combine the ordering process with certain rules that are reviewing the patient's data and advising the ordering care provider on the need for and potential adverse implications of the order. There is no specification at this time for electronic movement of the order.
2	Drug screening	a. Real-time alerts for drug-drug interactions and drug allergy contraindications. b. Electronic formulary check c. Enable user to maintain drug-drug and drug-allergy warnings. d. Track number of alerts that were responded to.	a. Real-time alerts for drug-drug interactions and drug allergy contraindications. b. Electronic formulary check. c. Enable user to maintain drug-drug and drug-allergy warnings. d. Track number of alerts that were responded to.	Functionality is enabled.	No HIE requirement. The presence of a "formulary check" requirement does imply acquisition of a target formulary which is most often delivered externally through download of that information from a data supplier. This is functionality usually built into the EHR E-Prescribing capability (see Objective #4).
3	Maintain problem list in ICD-9-CM or SNOMED-CT	a. Enable user to manage problem lists that span multiple visits.	a. Enable user to manage problem lists that span multiple visits.	Must be done for 80% of unique patients.	No HIE requirement. It should be noted the presence of an ICD or SNOMED coding / reference table implies acquisition from an external source. This is most often supplied through the practice management or hospital software application, but may also be part of the core EHR software application.
4	Electronic prescribing	Generate and transmit permissible prescriptions electronically (e-prescribing).		Must send 75% of non-controlled drug prescriptions electronically.	The requirement to transmit an E- Prescribing requires information exchange to a pharmacy data receiver which can be achieved either direct or through a third party. An HIE entity is not required.
5	Maintain active medication list	a. Enable user to manage an active medication list. b. Enable user to manage a medication history that spans multiple visits.	a. Enable user to manage an active medication list. b. Enable user to manage a medication history that spans multiple visits.	Must be done for 80% of unique patients.	No direct HIE requirement. Many providers who are already participating in E-Prescribing already have access to medication lists from the pharmacy benefits manager and/or other retail/commercial pharmacy. While the criteria focuses on management of the active medication list within the E HR, the criteria on reconciliation below (see objective # 22) suggest that HIE may be included in the future rule making

Objective #	Objective	Eligible Provider	Hospital	Measurement (Numerator and Denominator)	HIE Implication
					activities. .
6	Maintain active medication allergy list	a. Enable user to record, modify, and retrieve an active medication allergy list. b. Enable user to manage an allergy history that spans multiple visits.	a. Enable user to record, modify, and retrieve an active medication allergy list. b. Enable user to manage an allergy history that spans multiple visits.	Must be done for 80% of unique patients.	No HIE requirement.
7	Record demographics	Enable user to manage patient demographic data: a. Preferred language. b. Insurance type c. Gender. d. Race. e. Ethnicity. f. Date of birth.	Enable user to manage patient demographic data: a. Preferred language. b. Insurance type. c. Gender. d. Race. e. Ethnicity f. Date of birth. g. Date and cause of death.	Must be done for 80% of unique patients, including ALL data elements. Denominator is the number of patients seen (practice) or admitted as inpatients (hospital).	No HIE requirement.
8	Record vital signs	a. Height. b. Weight. c. Blood pressure. d. Calculate and display body mass index (BMI). e. Plot and display growth charts for patients 2-20 years old incl. BMI.	a. Height. b. Weight. c. Blood pressure. d. Calculate and display body mass index (BMI). e. Plot and display growth charts for patients 2-20 years old incl. BMI.	Must be recorded for 80% of patients seen (practice) or admitted (hospitals) age 2 and over, including ALL data elements. Denominator is the total number of unique patients age 2 and over seen (practice) or admitted (hospital).	No HIE requirement.
9	Record smoking status for patients age 13 and over	a. Current smoker. b. Former smoker. c. Never smoked.	a. Current smoker. b. Former smoker. c. Never smoked.	Must be recorded for 80% of unique patients seen (practice) or admitted (hospital) age 13 or older. Denominator is the number of unique patients age 13 and older seen (practice) or admitted (hospital).	No HIE requirement.
10	Incorporate clinical lab test results into EHR as structured data	a. Receive structured results and display in readable format. b. Display results containing LOINC codes. c. Enable user to change a patient's record based on a lab result.	a. Receive structured results and display in readable format. b. Display results containing LOINC codes. c. Enable user to change a patient's record based on a lab result	At least 50% of test results whose result can be expressed as positive/negative or as a number are stored in the EHR as structured data. The denominator is the number of lab tests ordered.	The requirement “receive structured results” implies, but does not require HIE from the laboratory services supplier to the ordering physician. What is required is that the results be entered into the chart in a structured format which would be time consuming and error prone if done manually, so it is clear that this requirement should be addressed through data exchanged activities. In the case of a hospital that is performing laboratory testing, there is an implied requirement to be an electronic

Objective #	Objective	Eligible Provider	Hospital	Measurement (Numerator and Denominator)	HIE Implication
					data supplier to their ordering provider community.
11	Generate lists of patients by specific conditions to use for quality improvement, reduction of disparities, and outreach	a. Patient demographics. b. Medication list. c. Specific conditions.	a. Patient demographics. b. Medication list. c. Specific conditions.	Generate at least one report listing patients of the EP or eligible hospital with a specific condition.	No HIE requirement.
12	Report quality measures to CMS or states	a. Calculate and display as specified based on specialty / type of physician practice.	a. Calculate and display as specified for hospital quality measures.	Numerator and denominator provided by attestation.	No HIE requirement for year 1 of Stage 1 (attestation is sufficient). In 2012 MU measures will need to be electronically submitted; however, the standards and processes for electronic submission have not yet been specified which the government will readdress. For 2011, eligible providers may provide aggregate numerator and denominator through attestation as noted in section II(A)(3) of the proposed rule. For 2012, measures may be electronically submitted as noted in the proposed rule. The NPRM does not specify the standards or process of electronic communications of quality measures which will commence in 2012. This will be addressed later.
13	Send reminders to patients based on patient preferences and selected by specific criteria for preventive/ follow up care	a. Patient demographics. b. Medication list. c. Specific conditions.		Reminders sent to at least 50% of unique patients seen in the practice who are age 50 and over.	The term “based on patient preferences” could imply electronic delivery. Interpretation can be that these preferences are more directed at the patient’s choice of receiving or not receiving reminders. Avenues that do not utilize health data exchange avenues may easily fulfill Stage I requirement.

Objective #	Objective	Eligible Provider	Hospital	Measurement (Numerator and Denominator)	HIE Implication
14	Implement five clinical decision rules, other than drug-drug interactions and drug-allergy contraindications, based on demographic data, diagnosis, conditions, test results, and/or medication list	a. Real-time alerts based on rules and evidence. b. Track number of alerts that were responded to.	a. Real-time alerts based on rules and evidence. b. Track number of alerts that were responded to.	Implement 5 clinical decision support rules relevant to specialty or high clinical priority (EP), or related to a high priority hospital condition (hospital), including diagnostic test ordering, along with the ability to track compliance with those rules.	No HIE requirement. This is dependent on the final interpretation of the rule. One interpretation is that HIE is not required for Stage 1. Other interpretations may involve access to external clinical rules and related rule triggers. These external sources could be accessible through portals or HIEs. Example includes using Web service over an HIE to determine rule triggers.
15	Check insurance eligibility electronically from public and private payers	a. Submit electronic eligibility query and receive a response.	a. Submit electronic eligibility query and receive a response.	Check eligibility electronically for at least 80% of patients seen (practice) or admitted (hospital).	HIE requirement to perform a query/response according to CORE rules using X12n 271/270. Note that the requirement does not speak to timing which opens up possibilities for batched transactions. This will depend upon the provider's workflow to determine the most efficient usage. Also, many providers currently have direct access to the eligibility systems through portals and online access..
16	Submit claims electronically to public and private payers.	a. To public and private payers.	a. To public and private payers.	File at least 80% of claims electronically. Denominator is the total number of claims filed.	HIE requirement to perform claims push electronically using X12n 837. There is no requirement to transmit directly to payers or adjudication third parties; consequently existing EDI arrangements are still in play.
17	Provide patients with an electronic copy of their information upon request	a. Test results. b. Problem list. c. Medication list. d. Medication allergy list. e. Immunizations. f. Procedures (Note: This is not listed in the MU NPRM but is listed in the standards Interim rule).	a. Test results. b. Problem list. c. Medication list. d. Medication allergy list. e. Immunizations. f. Procedures. g. Discharge summary.	Numerator: information provided to patients electronically within 48 hours. The denominator is the number of patients who request the information.	No HIE requirement for Stage 1. The supply of information can be done locally through creation of any <i>electronic Media</i> ¹ (eMedia) that can be given to the patient. eMedia is defined as any form of physical media that can be provided to the patient including CD or a memory stick/USB drive. eMedia may also include use of a local Web site/portal to deliver the information to the patient. Note: Appropriate encryption must be used with physical media to ensure that if the media is lost

¹ eMedia as used here can refer to any form of physical media that can be burned and given to the patient (CD, memory stick, etc.). It also includes use of a local Web site to deliver information to the patient which may cross the line over to what would otherwise be considered HIE.

Objective #	Objective	Eligible Provider	Hospital	Measurement (Numerator and Denominator)	HIE Implication
					<p>or stolen, the data is protected.</p> <p>There is implied HIE functionality if the provider uses an external non-tethered PHR.</p>
18	Provide patients with an electronic copy of their discharge instructions and procedures at time of discharge		<p>a. Discharge instructions.</p> <p>b. Procedures.</p>	Provide an electronic copy of discharge instructions and procedures for at least 80% of discharged inpatients who request them. The denominator is the number of patients who request the information electronically.	<p>No HIE requirement. Supply of information can be done locally through creation of any eMedia that can be given to the patient. eMedia is defined as any form of physical media that can be provided to the patient including CD or a memory stick/USB drive. eMedia may also include use of a local Web site/portal to deliver the information to the patient. Note: Appropriate encryption must be used with physical media to ensure that if the media is lost or stolen, the data is protected.</p> <p>There is implied HIE functionality if the provider uses an external non-tethered PHR.</p>
19	Provide patients with timely electronic access to their information	<p>a. Lab results.</p> <p>b. Problem list.</p> <p>c. Medication list.</p> <p>d. Medication allergy list.</p> <p>e. Immunizations.</p> <p>f. Procedures.</p>		Provide timely electronic access to health information for at least 10% of unique patients. The denominator is the number of patient seen.	<p>No HIE requirement. Supply of information can be done locally through creation of any <i>electronic Media</i>² (eMedia) that can be given to the patient. eMedia is defined as any form of physical media that can be provided to the patient including CD or a memory stick/USB drive. eMedia may also include use of a local Web site/portal to deliver the information to the patient. Note: Appropriate encryption must be used with physical media to assure that if the media is lost or stolen, the data is protected.</p> <p>There is implied HIE functionality if the provider uses an external non-tethered PHR.</p>

² eMedia as used here can refer to any form of physical media that can be burned and given to the patient (CD, memory stick, etc.). It also includes use of a local Web site to deliver information to the patient which may cross the line over to what would otherwise be considered HIE.

Objective #	Objective	Eligible Provider	Hospital	Measurement (Numerator and Denominator)	HIE Implication
					Note: While there is not a strictly derived HIE requirement, when one considers the implication of providing patients with an electronic copy of their outpatient lab results, an electronic push to a protected mailbox becomes a very cost-effective method for widespread results distribution. Consequently, providers will need to carefully consider whether or not they want to rely only on local eMedia for providing access.
20	Provide a clinical summary for each visit	a. Diagnostic test results. b. Medication list. c. Medication allergy list. d. Procedures. e. Problem list. f. Immunizations.		Clinical summaries are provided for at least 80% of office visits. The denominator is the number of unique patients seen.	No HIE requirement.
21	Exchange clinical information electronically with other providers and patient authorized entities	a. Receive diagnostic test results. b. Receive problem list. c. Receive medication list. d. Receive medication allergy list. e. Receive immunizations. f. Receive procedures. a. Send diagnostic test results. b. Send problem list. c. Send medication list. d. Send medication allergy list. e. Send immunizations. f. Send procedures.	a. Receive diagnostic test results. b. Receive problem list. c. Receive medication list. d. Receive medication allergy list. e. Receive immunizations. f. Receive procedures. g. Receive discharge summary. a. Send diagnostic test results. b. Send problem list. c. Send medication list. d. Send medication allergy list. e. Send immunizations. f. Send procedures. g. Send discharge summary.	Perform at least one test of exchanging key clinical information. Can be done at any time, including prior to the reporting period. Group practices only need to perform one test per EHR.	No HIE requirement for Stage 1. There is a requirement for the EHR to have the capability to exchange (requires the EHR to both send and receive data). The requirement in Stage 1, however, is limited to performing a valid test of the EHR functionality, and does not require a data trading partner to be at the sending or receiving end.
22	Perform medication reconciliation at relevant encounters and each transition of care	a. Compare and merge two or more lists into a single list.	a. Compare and merge two or more lists into a single list.	Medication reconciliation is performed for at least 80% of relevant encounters and transitions of care. The denominator is the number of relevant encounters and transitions of care.	No HIE requirement. However, performing medication reconciliation manually on paper can be very time consuming, and manual entry of patient prescriptions into the provider's EHR can be error-prone and also is time consuming. Providers should carefully consider the impact of this requirement on their intake workflow, and weigh that against the cost and effort involved with using an E- Prescribing vendor that can supply active medication lists for prescription drugs dispensed. Eligible providers may have access to medication lists from the

Objective #	Objective	Eligible Provider	Hospital	Measurement (Numerator and Denominator)	HIE Implication
					pharmacy benefits manager vendor and/or other retail/commercial pharmacy networks. Both cases involve a request for the information using the third party network.
23	Provide summary care record for each transition of care and referral	Provide summary care record for each transition of care and referral including, at a minimum, diagnostic test results, problem list, medication list, medication allergy list, immunizations, and procedures.	Provide summary care record for each transition of care and referral including, at a minimum, diagnostic test results, problem list, medication list, medication allergy list, immunizations, and procedures. IP: add discharge summary.	Provide summary of care record for at least 80% of transitions of care and referrals. Denominator is the number of transitions of care for which the practice or hospital was the transferring or referring provider.	HIE is required. Data suppliers must be able to generate an electronic visit summary and transmit it. Data receivers must be able to receive the electronic summary and display it in human-readable form. There is not a requirement in Stage 1 to actually incorporate the received data into the receiver's EHR. This can be accomplished through data exchange activities but does not require an HIE entity.
24	Submit data to immunization registries	Capability to submit electronic data to immunization registries and actual submission where required and accepted. (Record in EHR, retrieve, and transmit.)	Capability to submit electronic data to immunization registries and actual submission where required and accepted. (Record in EHR, retrieve, and transmit.)	Perform at least one test of submitting immunization data. Can be done at any time, including prior to the reporting period. State Medicaid requirements may supersede. Group practices only need to perform one test per EHR.	HIE may be required if the registries are capable of receiving electronic data (which most state registries are). If not, then the proven capability must at least be available in the EHR. The phrase 'where required and accepted' is ambiguous and requires clearer definition for provider follow up with their local immunization registry.
25	Submit reportable lab results to public health agencies		Capability to provide electronic submission of reportable lab results (as required by state or local law) to public health agencies and actual submission where it can be received. (Record in EHR, retrieve, and transmit.)	Perform at least one test of submitting reportable lab results. Can be done at any time, including prior to the reporting period. State Medicaid requirements may supersede. Group practices only need to perform one test per EHR.	HIE may be required if the Public Health agencies are capable of receiving electronic data. If not, then the proven capability must at least be available in the EHR. Note that there are likely already procedures in place today at the hospital to electronically transmit such data, if the Public Health agency has the capability, so this may not be an additional burden. This may also be accomplished through registries with data capturing and reporting if electronic data exchange function is available with the registries.

Objective #	Objective	Eligible Provider	Hospital	Measurement (Numerator and Denominator)	HIE Implication
26	Submit syndromic surveillance data to public health agencies	Capability to provide electronic syndromic surveillance data to public health agencies and actual transmission according to applicable law and practice. (Record in EHR, retrieve, and transmit.)	Capability to provide electronic syndromic surveillance data to public health agencies and actual transmission according to applicable law and practice. (Record in EHR, retrieve, and transmit.)	Perform at least one test of submitting electronic syndromic surveillance data. Can be done at any time, including prior to the reporting period. State Medicaid requirements may supersede. Group practices only need to perform one test per EHR.	HIE may be required if the PH agencies are capable of receiving electronic data. If not, then the proven capability must at least be available in the EHR.
27	Protect health information	Protect electronic health information created or maintained by the certified EHR technology through the implementation of appropriate technical capabilities.	Protect electronic health information created or maintained by the certified EHR technology through the implementation of appropriate technical capabilities.	Conduct or review a security risk analysis per 45 CFR 164.308 (a)(1) and implement security updates as necessary	No HIE requirement. However, what HIE is implemented in response to the above requirements must adhere to the security requirements of this section.
28	Protect health information	Provide transparency of data sharing to patient.	Provide transparency of data sharing to patient.	Record treatment, payment, and healthcare operations disclosures	No HIE requirement.