

HIM Principles in Health Information Exchange: RHIO Checklist

The purpose of this checklist is to facilitate HIM involvement in all phases and stages of RHIO development and implementation. This document will also be beneficial for those not involved in HIM to ensure that knowledgeable professionals are engaged in the process. It will serve as a useful source to develop a common understanding of the evolutionary stages of the RHIO based on best practice and current research in the healthcare industry.

Key Elements	Task Description
Stage 1: Formation	
1. Select stakeholder group	<ul style="list-style-type: none"> • Identify champions who understand the need and importance of HIE • Identify HIM members who have stature in the various stakeholder communities and who can help facilitate stakeholder consensus • Identify key stakeholders who can advance the HIE initiative and who appreciate HIM principles based on knowledge of HIM. Consider integrated delivery system, rural providers, consumer advocacy groups, public health, labs, pharmacies, and payers. • Identify key advocates within the stakeholder groups to enhance the likelihood of stakeholder buy-in. • Identify key advocates (non-HIM) members who understand and respect HIM’s contribution to the HIE initiative. • Understand and capitalize on any triggering events, calls to action, or drivers of the formation, advancement, and progress of the state-level HIE initiative.¹
2. Identify the goals of the group	<ul style="list-style-type: none"> • HIM stakeholders will bring to the table key guiding HIM principles core to the success of HIE including privacy and security, data quality, patient identification, etc. • Refer to the nine guiding principles that provide a multilayered approach to ensuring confidentiality of patient data: openness and transparency, purpose specification and minimization, collection limitation, individual participation and control, data integrity and quality, security safeguards and controls, accountability and oversight, and remedies.² • Identify possible goals and roles that may be appropriate to the state-level initiative on the basis of its state’s market characteristics and other factors.³ • Advocate for HIM professionals to assist in framing the role/goals of the HIE such as convener, educator, and innovator: <ul style="list-style-type: none"> ○ Track federal policy, proposed legislation, and federal direction in the areas of EHR and HIE. ○ “Facilitate consumer input, monitor public opinion, and help communicate with the public.”⁴
3. Define governance structure	<ul style="list-style-type: none"> • Involve HIM stakeholder in the consideration of “source of authority or power, choice of legal entity, governing structure (e.g., board, decision-making group), and approach to transparency.”⁵ • If HIM stakeholders are not part of the governing body, advocate for a transparent approach to gain buy-in and acceptance from stakeholder group.

Key Elements	Task Description
Stage 1: Formation (cont.)	
4. Choice of legal entity	<ul style="list-style-type: none"> • HIM stakeholders should provide best practice consideration in this area, based on failures of regional RHIO efforts in the absence of a careful choice from various options. Consideration of an existing structure versus the formation of a virtual state-level HIE through the use of contracts and memoranda of understanding to establish the relationship between parties are two options.⁶ • Key considerations for choice of a legal entity include: <ol style="list-style-type: none"> 1. If a state-level HIE initiative, a not-for-profit is recommended. 2. Consider the future vision for the HIE initiative when deciding on which legal entity makes the most sense. 3. If a state agency is created to advance the initiative ensuring balance is critical to ensuring stakeholder buy-in and accountability.⁷
5. Identify initial funding sources and financial model for sustainability	<p>HIM stakeholders should review initial funding and long-term funding options as well as financial lessons learned from other RHIO efforts.⁸</p> <p>Options include:</p> <ol style="list-style-type: none"> 1. Membership Fee Model – stakeholders pay to support shared serves for all. 2. HIE Transaction Fee Model 3. Program and Fee Model 4. Combination Models
Stage 2: Design	
1. Engage stakeholder group in establishing organizational structure	<p>Define process – operational considerations:</p> <ul style="list-style-type: none"> • Determine whether HIE “will be conducting technology operations (e.g., actually hosting and sharing healthcare data).” • “Develop a business plan to achieve short and long-term goals.” • “Conduct a proof-of-concept exercise for new services or products...to evaluate the financial and operational impact.” • Identify resource requirements: staff resources, business planning, and establishing the basic policy framework. • “Understand the goals of each stakeholder and the benefit that they perceive the HIE is capable of providing.” • On the basis of the model for the HIE, determine organizational funding needs and develop viable sustainability options based on the business plan.⁹
2. Identify RHIO structure	Will the RHIO be conducting HIE operations (record locator versus CDR)? If so, basic hardware, operating system and database software, and general architecture for planned operations. ¹⁰
	Consider future data sharing outside of RHIO.
	Consider whether all in the RHIO will use a common vendor or interface systems.
	Leverage health department registry efforts to facilitate HIE effort.

Key Elements	Task Description
Stage 2: Design (cont.)	
	<p>Nonprofit public entity or nonprofit mutual benefit corp (501 (c)(3, 4 or 6)), for-profit general law corp (in states where corporate practice of medicine is not allowed), partnership or limited liability company (for profit), special authority, joint powers agency (multiple agencies under a new and separate public agency not including nongovernment participants). How will it be insured?¹¹</p> <p>Who “owns” the data? HIMSS lists three models:</p> <ul style="list-style-type: none"> • Transactional – exchange e-mail on patient and financial information from individual encounters. Requires the least change and is a first step to integration into a more robust network. • Centralized – best for visualization of the continuum of care. Must have data-share standards, usually provided by a single vendor. • Federated – view and share patient information without a centralized repository or unique identifier and allows contributing organization to retain ownership, control of their data, and access to that data.¹² <p>How will data match/patient ID be determined (algorithmic or other)? Patient-matching/identification models include centralized, decentralized (federated), and hybrid models thus far.</p> <ul style="list-style-type: none"> • Centralized – all databases are combined into one repository, assigns new identifier, allows for duplication of data. Will it store demographics only or include insurance and other information? Who will manage updates to the information? Works well for participants of like entities (i.e., physician offices). • Decentralized – data are physically stored at originating organization. The electronic MPI constrains minimal demographic data and points to where records are held. No PHI shared. Updates controlled at each participant site. Preferred model for participants who hold records with extraordinary privacy concerns (mental illness, substance abuse, HIV, etc), allows patient to opt out. • Hybrid - must determine what data is centralized and what is decentralized as well as patient ID.¹³ <p>State versus private involvement or a combination – financial and organizational costs/benefits of that arrangement. Will legislation be required?</p> <p>Data sharing outside of RHIO – setting boundaries, who will manage file transfers, confidentiality? Who will design and manage the data-share agreements? What about criminal justice/corrections system – could they be a player in the RHIO itself or is a data-share arrangement appropriate?</p> <p>Policy-writing – what are the barriers to effective policy (legislation)? Is there access to legal advice? Are policies fluid enough to deal with legislative changes?</p> <p>Security of data – are all data types within the RHIO “stored” without needing to have additional protection? What is the security/risk management plan for a breach? Theft? Malicious tampering?</p>

Key Elements	Task Description
Stage 2: Design (cont.)	
	Access of data – Who within the RHIO will access the data? Need-to-know issues need to be addressed, as well as disclosure log/release of information processes.
	Leverage state agency databases to facilitate HIE effort -- state funding, full or partial, is a plus in financial considerations for smaller providers.
	Enlist patient/consumer buy-in to the concept while assuaging their privacy concerns.
3. Educational strategy	HIPAA and the notice of privacy practices – depending on model chosen, single NPP or separate NPPs at each facility; it most likely needs to change to address participation in the RHIO.
	Educate IT professionals on database set-up and share capability. Confidentiality concerns should be addressed in the design phase, particularly if centralized model is chosen.
	Enlist all-party buy-in – this is a cost-savings for them as well as an increase in patient care quality. Are they able to dispel competition fears for the sake of patient care and quality?
	Keep state legislators (enlist support) and other interested parties (i.e., AHRQ) apprised of your endeavor.
	Marketing/advertising to familiarize the local/regional market to the availability of the resource. Be prepared for data-share opportunities.
	Data mapping, data quality, and integrity ¹⁴
4. Data considerations	Patient identification issues: duplicate, overlays, merges, etc.
	Consideration of exceptions for drug/alcohol abuse program patients, psychotherapy patients, etc. ¹⁵
	Provide a snapshot in time; pertinent clinical, demographic, and administrative data for patient. ¹⁶
	Current payer information ¹⁷
	Advance directives (i.e., healthcare proxy, organ donation) ¹⁸
	Enhance providers practice at the patient level through data access, imaging data. ¹⁹
	Define quality indicators and how to measure.
	Review data standards appropriate to structure (federated, centralized, etc.) and develop thorough integration testing scripts.
	Develop methods, responsibilities, and procedures for data integrity throughout life of the record (data capture, processing, interfaces, transmission, storage, and retrieval).
	Consider whether the information could be used/converted into a Continuity of Care Record (CCR).
	Does the vendor’s product provide audit trails to show all changes or does it only show who made the last change?

Key Elements	Task Description
Stage 2: Design (cont.)	
5. Identification of best practices/lessons learned	Review current state activity against best practices..
	Business process redesign must be aligned with HIE vision, business objectives and goals
	Review AHIMA’s FORE Library: HIM Body of Knowledge, HIMSS, eHI’s Connecting Communities, AHRQ.
	Review fledging and failed RHIOs to identify lessons learned.
	Minimum necessary requirements: results, problem list, med list, allergies/ADRs, immunization history, and other data elements required by the goals to develop a designated record set and legal health record.
6. Design of access, use, disclosure, and retention processes	Define role-based access or other access and authentication controls. Access permissions defined clearly, such as roles for view only, add and edit online documentation, database management, print, fax, and e-mail abilities.
	Define role of students in access policies.
	Develop process for patient opt in/opt out.
	Review state and federal regulations for sensitive records and develop policies and procedures as it relates to the opt in/opt out process in the areas of: <ul style="list-style-type: none"> • Minor records • Drug and alcohol abuse²⁰ • HIV • Psychiatric • Genetic testing • Research • Other
	Consider HIPAA and other federal and state privacy regulations as it relates to other access, use, disclosure and retention processes, accounting of disclosures and designated record set responsibilities.
	Security and privacy: enable secure access.
	Disclosure policies based on database model or record locator model.
	Retention of data determined by state and federal regulations. Also consider the Civil False Claims Act (whistleblower law) - statute of limitations is 10 years.
	Design process for accountability and management of all aspects of access, use/disclosure, and retention.
	Test auditing and monitoring access, use/disclosure; consider patient’s ability to see who has access.
	Test audit trail and establish mechanism for investigating and mitigating privacy or security breach.
	Develop policy: Will the patient be able to access their own information (PHR/CCR capabilities)?
	Develop policy/procedure for complaints of a breach of confidentiality, accidental breach or intentional, or if patient insists he or she did not authorize data to be shared.

Key Elements	Task Description
Stage 2: Design (cont.)	
7. Design community buy-in to RHIO	Develop communication plan, such as forums, news articles, patient support groups, ombudsmen.
	Ensure active participation of community member(s) in governance
	Provide mechanism for collecting and responding to complaints and compliments.
Stage 3: Implementation	
1. Interoperability	Network must align with existing process flow from all organizations, streamline, and optimize. ²¹
	HL7 Electronic Health Records Special Interest Group defines three modes of interoperability: technical, semantic, and process. ²²
	Technical EHR interoperability: records are interchanged with secure and reliable transport.
	Semantic EHR interoperability: records are interchanged with content and meaning preserved.
	Process EHR interoperability: records are interchanged in the course of the healthcare delivery process and promote continuity of that process.
	Motivates caregivers and business personnel to trust data that reveals how and when the record has been modified over the continuum of care.
	Framework to promote the use of EHRs in a legal context
	Clinical data standards and common terminology development are in process so HIM professionals will work with IT in testing the accuracy of data sharing. A significant problem with multiple systems. ²³
	Implement file transfer program/process as applicable according to data exchange model chosen.
2. Data elements/content issues	Data elements defined with detailed requirements and considerations established. ²⁴
	Staging/phasing of data elements provided established to correspond with the implementation rollout.
	Implement the data model.
	Assess the effectiveness.
3. Implement Process Opt in/Opt Out	Opt in/out choices: will you consider the patient opted in if they don't check a box that says they opt out, or will you make the patient choose opt in or opt out? For institutions sharing sensitive information, default opt-in may not elicit patient trust.
	Before vendor selection is finalized, evaluate the ability to successfully filter data according to specified criteria (i.e., patient opt out, lab data but not medication data) should be tested. Vendors who say they are "HIPAA compliant" do not always mean compliant with HIPAA privacy regulations, rather it often means they are compliant with Transactions and Code Set regulations of HIPAA.
	Determine whether the opt in or opt out form will be combined with another form signed on admission.

Key Elements	Task Description
Stage 3: Implementation (cont.)	
	<p>Develop process to relay the patient’s choice to the database administrator.</p> <p>Consider if the patient opts out, will he or she be able to opt in at a later time? What will be involved in that process? Develop process to communicate the change to the database administrator.</p> <p>Test and implement processes.</p> <p>Based on model selected, implement and monitor the effectiveness of the process</p>
4. Implement access, use, disclosure and retention policy and practices	<p>Implement the user access and security model based on the structure of the data exchange and the database model.</p> <p>Retain data as determined by state and federal regulations.</p> <p>Implement process for accountability and management of all aspects of access, use, disclosure, and retention</p> <p>Implement policy/procedure for complaints of a breach of confidentiality, accidental or intentional, or if patient insists he or she did not authorize data share with “xxx.”</p> <p>Begin auditing and monitoring access, use/disclosure.</p> <p>Provide audit trail and establish mechanism for investigating and mitigating privacy or security breach.</p> <p>If patient becomes a research participant, develop process to suppress release for nontreatment disclosures.</p>
5. Stakeholder/consumer education	<p>Implement the stakeholder/consumer educational plan.</p> <p>Assess the effectiveness, and refine the educational plan based on consumer/stakeholder feedback.</p>
6. Implement communication plan	<p>Implement the plan based on stakeholder and consumer needs that will facilitate patient and financial data.²⁵</p> <p>Update community/regional disaster plan to assure RHIO information is accessed.</p>
7. Implement the data map	<p>“A technical blueprint of the information exchange shows data flow and management from the point of data publication to the regional view.”²⁶</p> <p>“Data is published from the source to the exchange:</p> <ul style="list-style-type: none"> • Participation agreement • Patient data • Secure connection • Batch/real-time”²⁷ <p>“Exchange receives data and manages data transformation</p> <ul style="list-style-type: none"> • Mapping of data • Parsing of data • Standardization of data • Queue Management”^{28, 29} <p>“Organizations [and HIM professionals] will have a level of responsibility...</p> <ul style="list-style-type: none"> • Issue Resolution • Data Integrity • Entities are responsible for managing their data”³⁰

Key Elements	Task Description
Stage 3: Implementation (cont.)	
	<p>“Data bank compiles and aggregates the patient data at the regional level</p> <ul style="list-style-type: none"> • Compilation Algorithm • Authentication • Security • User Access”³¹
8. Data integrity	<p>Assign management of the data quality and integrity by correctly matching results and other data to the correct patient, both at the source and at the system level.</p> <p>Ensure patient identity management.</p> <p>Test audit trails on amendments, corrections, and alterations.</p>
9. Data reporting	<p>Develop reports to demonstrate number of requests, type of requests.</p> <p>Develop reports for quality indicators or outcomes.</p> <p>Monitoring and auditing reports, and for sufficient detail in privacy or data security incident investigation.³²</p> <p>Reports on potential duplicate or overlay patients (management by RHIO or source as developed in design)</p>
10. Data sharing	<p>Develop a model to allow data sharing. Three broad approaches include the transactional model, centralized model, and federated model.³³</p> <p>Develop a process to respond to requests for aggregate or outcomes data</p> <p>Determine which type of data share agreement will be required: memorandum of understanding, data use agreement, BAA, or QSOA (42 CFR, Pt II).</p>
11. Carefully stage the implementation to assure the realization of the full vision following the launch.	<p>Launch phase - basic functionality and infrastructure established to:</p> <ul style="list-style-type: none"> • Allow for specific outcomes to be targeted: limited to key data to facilitate care delivery and critical elements needed to provide emergency care • Participants – core healthcare entities (providers, plans, PBMs, labs)³⁴ <p>Expansion phase</p> <ul style="list-style-type: none"> • Layer on additional functionality • More target outcomes/data added • More participants added: rural providers, public health <p>Full implementation</p> <ul style="list-style-type: none"> • Functionality expanded to address information needs from the point of care to public health
12. Evaluate the effectiveness of the RHIO:	Business process redesign:
Sustainability	Evaluate end user acceptance and participation.
	Aggregate and report community response to RHIO, complaints and compliments.
Benefits	Outcomes reporting to governance and to community
	Sustainability through oversight and management of funding source
	Use by stakeholders (was training successful, is system easy to use)
	Community acceptance

Key Elements	Task Description
Stage 3: Implementation (cont.)	
	Communicate benefits results to users and the community, including what's new.
	Value to providers, public health agencies, payers, patient, pharmacies/PBMs, and commercial labs realized: <ul style="list-style-type: none"> • Providers <ul style="list-style-type: none"> ○ Timely access to relevant data for improved decision making ○ Rapid access - anywhere, anytime ○ Reduced clerical and administrative costs ○ More efficient and appropriate referrals ○ Increased safety in prescribing/monitoring compliance; alerts to contradictions” ○ Improved care coordination ○ Potential revenue through decrease in rejected claims³⁵
	Value to public health agencies <ul style="list-style-type: none"> • More comprehensive data • Greater physician participation • Easier integration of information from disparate sources • Outcomes analysis • Early detection of disease outbreaks of cases that suggest a local epidemic • Bioterrorism preparednes
	Value to payers <ul style="list-style-type: none"> • Improved customer service • Improved disease and care management programs • Improved information to support research, audit, and policy development
	Commercial labs <ul style="list-style-type: none"> • Enhanced public relations; exclusive contracts • Decreased write-offs from unnecessary tests • Decreased EDI costs; increased efficiencies
	Pharmacies/PBMs <ul style="list-style-type: none"> • Reduced administrative costs • Increased medication compliance
	Payers <ul style="list-style-type: none"> • Improved customer service • Improved disease and care management programs • Improved information to support research, audit, and policy development
	Patient <ul style="list-style-type: none"> • Improved quality of care through better informed caregivers • Decreased cost of care • Safer care

Notes

1. Foundation of Research and Education (FORE). "State Level Health Information Exchange Initiative: Development Workbook." Available online at www.staterhio.org. For types of stakeholders, see appendix B, worksheet 2-1.
2. Connecting for Health. "Connecting for Health Common Framework." Available online at www.connectingforhealth.org/commonframework.
3. FORE. "State Level Health Information Exchange Initiative: Development Workbook." For possible roles and functions, see appendix B, worksheet 3-1.
4. Ibid. p. 18.
5. FORE. "State Level Health Information Exchange Initiative: Development Workbook."
6. Ibid. p.24-25. See appendix B, worksheet 4-2 for a tool to help analyze choice of legal entity.
7. Ibid.
8. Ibid. p. 28-30. See appendix B, worksheets 5-1 - 5-5 for additional tools to evaluate funding issues.
9. Ibid.
10. Ibid.
11. Ibid.
12. van der Grinten, Peter T. and Charles W. Jarvis. "RHIO Technology Case Studies." *Guide to Establishing a Regional Health Information Organization*. Chicago, IL: Healthcare Information and Management Systems Society, 2007, p. 76. For the federated model, see also Kohn, Deborah, and Pamela Oachs. "Informatics in Healthcare." *Health Information Management: Concepts, Principles, and Practice*. Chicago, IL: AHIMA, 2006: 48. See also Safran, Charles et al. "Toward a National Framework for the Secondary Use of Health Data." *Journal of AMIA* 14 (Jan/Feb 2007): 1-9, and Burrington-Brown, Jill, Beth Hjort, and Lydia Washington. "Health Data Access, Use, and Control." *Journal of AHIMA* 78, no. 5 (May 2007): 63-66.
13. Fernandes, Lorraine, and Jim Younkin. "Patient Identification and Matching." *Guide to Establishing a Regional Health Information Organization*. Chicago, IL: Healthcare Information and Management Systems Society, 2007: 69.
14. See the 1998 practice brief "Data Quality Management Model."
15. US Substance Abuse and Mental Health Services Administration. "Confidentiality of Alcohol and Drug Abuse Patient Records Regulation and the HIPAA Privacy Rule: Implications for Alcohol and Substance Abuse Programs." Available online at www.hipaa.samhsa.gov/Part2ComparisonCleared.htm.
16. Soti, Praveen, and Seema Pandey. "Business Process Optimization for RHIOs." *Journal of Healthcare Information Management* 21, no. 1 (2007): 40-47.
17. US Substance Abuse and Mental Health Services Administration. "Confidentiality of Alcohol and Drug Abuse Patient Records Regulation and the HIPAA Privacy Rule."
18. CAQH, Committee on Operating Rules for Information Exchange (CORE). "CORE Mission and Vision." Available online at www.caqh.org.
19. Malepati, Sarath, Kathryn Kushner, and Jason S. Lee. "RHIOs and the Value Proposition: Value Is in the Eye of the Beholder." *Journal of AHIMA* 78, no. 3 (Mar. 2007): 24-29.
20. US Substance Abuse and Mental Health Services Administration. "Confidentiality of Alcohol and Drug Abuse Patient Records Regulation and the HIPAA Privacy Rule." State regulations should also be consulted.
21. Soti, Praveen, and Seema Pandey. "Business Process Optimization for RHIOs." Fenton, Susan, Kathy, Giannangelo, Crystal Kallem, et al. "Data Standards, Data Quality, and Interoperability." *Journal of AHIMA* 78, no. 2 (Feb. 2007): extended online edition.
22. HL7 EHR Technical Committee. "EHR Interoperability Model with EHR Data Exchange Criteria: Draft Standard for Trial Use." March 2007. Available online at www.hl7.org/ehr/downloads/index_2007.asp.
23. ASTM, ANSI, HL7, NCPDP (pharmacy data), and DICOM (digital imaging) are just a few of the standards setting and common terminology organizations.

24. Frisse, Mark. "RHIO Case Studies SW Tennessee." Presentation, eHealth Initiative Summit, March 2005.
25. Avalere Health LLC. "Evolution of State Health Information Exchange: A Study of Vision, Strategy, and Progress." January 2006. Available online at www.avalerehealth.net/research/docs/State_based_Health_Information_Exchange_Final_Report.pdf
26. Frisse, Mark. "RHIO Case Studies SW Tennessee."
27. van der Grinten, Peter T., and Charles W. Jarvis. "RHIO Technology Case Studies."
28. Ibid.
29. See the "[Data Quality Process Grid](#)" in the online version of the practice brief on "HIM Principles in Health Information Exchange."
30. van der Grinten, Peter T., and Charles W. Jarvis. "RHIO Technology Case Studies."
31. Ibid.
32. Consider reporting at a regular interval to the steering committee.
33. van der Grinten, Peter T., and Charles W. Jarvis. "RHIO Technology Case Studies."
34. Frisse, Mark. "RHIO Case Studies SW Tennessee."
35. Ibid.

Checklist Resources

Connecting for Health. Available online at www.connectingforhealth.org/.

Consumer League Response to National Health Information Exchange Network. Available online at www.nclnet.org.

eHealth Initiative. Available online at www.ehealthinitiative.org.

Electronic Health Records Vendors Association. Available online at www.ehrva.org.

Healthcare Information Technology Standards Panel. Available online at www.hitsp.org.

HIT Dashboard. Available online at www.hitdashboard.com.

Integrating the Healthcare Enterprise. Available online at www.ihe.net.

LaTour, K., and S. Eichenwald-Maki. *Health Information Management: Concepts, Principles, and Practice*. 2nd ed. Chicago, IL: AHIMA, 2006.

The Markle Foundation. Available online at www.markle.org/markle_programs/.

National Conference of State Legislatures. Available online at www.ncsl.org.

National Consumers League. Available online at www.nclnet.org.

National Patient Safety Foundation. Available online at www.npsf.org.

The Robert Wood Johnson Foundation. Available online at www.rwjf.org/index.jsp.

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