

**Statewide Health Information Network for New York (SHIN-NY):
Connecting New Yorkers and Clinicians Use Case**

Version 1.0

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1. Executive Summary

Background: Health care spending continues to rise and concerns persist about preventable errors, uneven health care quality, uncoordinated care and poor communications among providers. These problems – high costs, medical errors, variable quality, administrative inefficiencies, and lack of coordination – are closely connected to inadequate use of health information technology (health IT) as an integral part of medical care. As a result, there is a large and growing demand to provide New Yorkers with greater access to and control over their personal health information and an interconnection with their clinicians to enhance communication. Many studies have demonstrated that even simple online reminder and education programs positively influence patient behavior.

The central goal of this use case is to actively engage New Yorkers with access to their own basic healthcare information and interconnect them to their clinicians to receive disease management information, prevention and wellness reminders and other health education. The development and implementation of New York's health information infrastructure, including the SHIN-NY and personal health tools are required to demonstrate this use case.

Additionally, the National experience from emergency events such as September 11 and Hurricane Katrina has shown the critical need for providing physicians and consumers secure electronic access to critical personal health information and emergency information for persons injured, evacuated or displaced by the event. The current evacuation planning activities related to coastal storm surge zones in NY State and the actual emergency declarations that resulted from the regional flooding in Central NY in June 2006 and the snow emergency in Western NY in Fall 2006, all point to the critical need for New Yorker's to have secure, electronic access to their medication information.

Enabling access to this essential information for medical care providers and people under their care who are evacuated or displaced by an event, provides value and a framework to build towards the goal of implementation of interoperable personal health tools. It will improve quality of care and reduce errors or unnecessary treatment as consumers can easily and securely access their current and historical basic health information and share them with all providers immediately as needed.

Broad Area: Implement New York's health information infrastructure to provide New Yorker's with access to critical personal health information and interconnect them to their clinicians to receive general health information through the SHIN-NY and personal health tools.

Specific Use Case Area: Make current and historical medication information available to New Yorkers in a secure and easily accessible format, including in an emergency situation and interconnect them to their clinicians to receive information such as prevention, wellness, disease management, and emergency response information. There are two components of this use case: (1) implementing the technical capacity via the

SHIN-NY for New Yorker's to have access to medication information and be interconnected to their clinician and health plan to receive other general health information such as disease management information and emergency response information; (2) implementing personal health tools through which New Yorker's access their personal health information and interconnect to their clinicians. This use case aligns with and builds upon the Office of the National Coordinator for Health Information Technology (ONC) Emergency Responder EHR Use Case, Harmonized EHR Lab Use Case, and Harmonized Consumer Empowerment (Registration & Medication History) Use Case.

2. Description of Connecting New Yorkers to Clinicians Use Case

A key step to ensure the development and implementation of New York's health information infrastructure with uniform and coordinated health IT building blocks is the identification and development of use cases, which provide a common focus for the different activities and help lead to specific requirements, architecture, standards and policy discussions.

This use case has been developed by the NYSDOH, with input from subject matter experts (SME) and in consultation with involved program areas. It describes the process or interaction that each primary stakeholder will invoke in the capture, discovery, matching, anonymization, re-identification, validation and transmission of medication and laboratory information.

The use case addressed in this document focuses on the implementation of standardized, accessible and secure solutions enabled by RHIOS for accessing current medication information by New Yorkers, including for emergency situations. The system and processes must support the common HIE protocols and services of the SHIN-NY that align with and build on existing and emerging Nationwide Health Information Network (NHIN) standards to achieve interoperability. Wherever possible, RHIOs who are enabling HIE via the SHIN-NY will require their vendor partners to reuse and leverage common tools and services.

As New Yorkers need to securely and easily access their medication records, including in an emergency, as well as share it with providers of their choice, the RHIOs must also support harmonized standards for medication data with ability to exchange it via the SHIN-NY. In addition, RHIOs need to ensure an open and interoperable architecture for querying other organizations for data and matching it to the consumer, while offering the maximum possible protection to patient privacy. An interconnection between New Yorkers and their clinician emphasizing care management, prevention and wellness information using personal health tools must be supported.

Patient consent, privacy and permissions infrastructure must comply with the New York Health Information Security and Privacy Collaborative (NYHISPC) findings and recommendations. Data provided by the RHIOs must follow standards and formats defined by Certification Commission for Healthcare Information Technology (CCHIT) and standards recognized by the Secretary of Health and Human Services (HHS).

In light of the current variation of personal health record definition as well as functionality and features of various systems, NYSDOH and SHIN-NY stakeholders will continue to develop and discuss principles related to accountability, disclosure, functionality, access, and use of personal health tools as well as descriptions of what would constitute a required set of medical information for consumers, including personal health information and general information.

3. Scope of Connecting New Yorkers to Clinicians Use Case

This use case will identify the principle stakeholders and flow of events for the authorized and secure access and exchange of New Yorkers' medication information, including in an emergency and an interconnecting with their clinicians. The use case is not intended to define all system features; it identifies and describes interactions between key systems and stakeholders and serves as a guide that leads to further development of functional requirements and other products. The grant projects will iteratively refine this document and maintain it so that it can be translated into technical requirements.

The use case primarily includes the actions that are required to make medication information available to consumers and exchange these data via the SHIN-NY, including for emergency events and to interconnect New Yorkers with their clinicians through the SHIN-NY and personal health tools. However, the policies, processes and standards may be applicable to many types of HIE including public health.

The use case scope includes:

1. Authenticating consumers, designated caregivers, and providers.
2. Querying other organizations for data and matching it to the consumer.
3. Accepting "batch" data from other organizations in standardized format and matching to the appropriate consumers.
4. Ensuring secure electronic transmission of complete, preliminary, final and updated data.
5. Accessing, viewing, and sharing medication information.
6. Sending general health information, e.g., disease management, prevention and wellness, emergency response information to the consumer.
7. Recording of interactions and transactions to enable access and viewing tracking and generation of system logs.

Because of the need for consumers to access their medication records seamlessly among different RHIOs, this use case presumes a certain linkage between consumer's personal identification and their medication information. This linkage is an important consideration for identifying and locating individual consumers and their available medication information across the SHIN-NY. For the purposes of this use case, the linking of a consumer's personal identification to the medication information includes: (1) identity matching, (2) linkages between the data, (3) and the ability to incorporate both types of data simultaneously into a system (although they may come from different systems themselves). Consent supporting interoperable exchange of this data between

regions must be compliant with NYHISPC.

Although the use case does not specifically define what data constitutes a complete set of medication information, as it will be defined by the SHIN-NY architecture process in the future, it is expected that the information will be restricted to the information consumers generally need to provide when visiting a physician, hospital, or pharmacy, such as: demographic information sufficient to help identify the consumer; financial information sufficient for insurance eligibility checking and claims processing and basic clinical information including allergies to medication.

In addition, sufficient information will be available to enable the creation, update, viewing of both current and past medication records. A listing of data elements for this use case is included in Appendix II, it is not inclusive but rather is illustrative of the types of data elements various stakeholders and SMEs felt were important.

Enabling consumers to establish permissions and access rights for viewing their data as well as view which authorized clinicians and providers have viewed their personal health information is a future goal of this use case.

4. Stakeholders for Connecting New Yorkers to Clinicians Use Case

- Regional Health Information Organizations
- Public Health agencies and their partners
- Authorized family member/caregiver
- Data providers
- Pharmacy Benefit Managers
- Health Information Service Provider
- Clinician
- Consumer/Patient
- Pharmacies
- Payers
- Employers
- Schools

Detailed description of the stakeholders will be included in Appendix III.

5. Pre-Conditions

Pre-conditions are the conditions that must be in place before the start of the use case. This includes, but is not limited to, the state of a stakeholder, data that must be available somewhere, or an action that must have occurred. This section also includes triggers for the initiation of the use case and discussions of important assumptions made about the use case during its development.

1. Technical infrastructures enable secure, appropriate, and accurate information access and exchange across data sources and systems. This includes, but is not limited to:
 - a. methods to identify and authenticate users;
 - b. methods to identify and determine providers of care;
 - c. methods to correctly match patients and locate data across systems
 - d. methods to enforce data access authorization policies;
 - e. methods to ensure the integrity of data; and
2. Ability to identify and request corrections to errors.

3. Ability to apply updates and corrections on original entries.
4. Appropriate standards are developed, approved, and widely adopted supporting data content and structure as defined by the SHIN-NY architecture process, allowing universal access by compliant systems.
5. Core datasets are defined and adhered to.
6. Security and privacy policies, procedures and practices are commonly implemented to support acceptable levels of patient privacy and security.
7. NYHISPC compliant patient identification methodology; consent; privacy and security procedures in place and tied to person-access to medication data.
8. Standards protocols; coding, vocabulary and normalization standards have been agreed to by all relevant participants.
9. NYHISPC compliant legal and governance issues regarding data access authorizations, data ownership, and data use are in effect.
10. Promotional, marketing plan in place to encourage and provide incentives for participation.

6. Post-Conditions

Post-conditions are the conditions that will result or be the output from the use case. This includes, but is not limited to, the state of a stakeholder upon conclusion of the use case, data that was created or now available, and identification of actions that may serve as pre-conditions for other use cases.

1. New Yorkers can access their medication information in an accessible and secure format that may be used for their medical care, especially in emergency events.
2. New Yorkers can share their medication information with clinicians/providers for their medical care, especially in emergency events.
3. New Yorkers can receive prevention and wellness/care management information from clinicians
4. With a New Yorker's consent, clinicians connected to the SHIN-NY at the regional level enabled by RHIOs will be able to automatically exchange medication information with other authorized RHIOs via the SHIN-NY.
5. Data messages will be formulated following a standard structure, coding, and minimal required set of information.
6. RHIOs will support the privacy and security of patient health information
7. Appropriate entities are authorized and authenticated to send or receive data.
8. System transactions are auditable.
9. As future goal of the use case, New Yorkers know who has access to their data and can view who accessed or updated their medication records.

7. Details of Use Case Scenarios and Perspectives

The following entity-driven perspectives will be part of the use case:

- *Consumer* includes New Yorkers and patients and may include other authorized caregivers designated by patients to serve as their proxies.
- *Health Care Provider* includes physicians, hospitals, other clinicians, nurses, front desk, and other support staff. Includes EHR used in health care delivery.
- *Regional Health Information Organizations* denote the implementation of the Statewide Health Information Network –NY for exchanging health and patient information among clinicians, providers and consumers.

Data flow models required to accomplish this use case is described in the following scenarios, which represent ability of consumers to securely and easily access and share their medication information, including in a health care emergency and receive health information by being interconnected to their clinicians. A detailed description and flow diagram of each scenario is included in Appendix IV.

1. *New Yorker's Direct Access to their Medication Information:* Consumer can register with a RHIO to access their current medication information through the RHIO, including in an emergency situation.
2. *New Yorker's receipt of general health information via an Interconnection to Their Clinician*

Appendix I: Statewide Health Information Network – New York (SHIN-NY) Core HIE Services

The following is a list of core HIE services as defined by ONC will be provided by the SHIN-NY.

The term “connected through” refers to consumers, providers, organizations and networks that achieve primary connection to the SHIN-NY through a particular HIE versus being an HIE themselves or being “connected through” a different HIE. Within the context of the HEAL NY 5 grant, a reduced set of services may be implemented in the 1st two years and the rest may be implemented in the future.

The term “user” refers to an individual or organization that takes advantage of SHIN-NY core HIE services directly or through a connected network or system. The term “subject” refers to the consumer (or patient), provider, or organization to which data and/or services refer.

SHIN-NY Core Services and Their Implementation within This Use Case

Common HIE Protocols/Services	Year 1, 2	Future
<i>Data Services</i>		
Secure data delivery, and confirmation of delivery, to EHRs, PHRs, other systems and networks	X	
Data lookup, retrieval and data location registries	X	
Support for notification of the availability of new or updated data	X	
Subject - data matching capabilities	X	
Medication and laboratory record exchange between HIEs		X
Data integrity and non-repudiation checking	X	
Audit Logging and error handling for data access	X	
Audit Logging and error handling for data exchange		X
Support for secondary use of medication and laboratory data including data provisioning and distribution of data transmission parameters		X
Data anonymization and re-identification as well as HIPAA de-identification		X
<i>Consumer Services (compliant with NYHISPC)</i>		
Management of consumer identified locations for the storage of their medication and laboratory records		X
Support of consumer information location requests and data routing to consumer identified medication and laboratory records		X
Management of consumer-controlled providers of care and access permissions information	X	
Management of consumer choices to not participate in network services	X	

Consumer access to audit logging and disclosure information for medication data	X	
Routing of consumer requests for data corrections		X
<i>User and Subject Identity Management Services (compliant with NYHISPC)</i>		
User identity proofing, and/or attestation of third party identity proofing for those connected through that HIE		X
User authentication, and/or attestation of third party authentication for those connected through that HIE		X
Subject and user identity arbitration with like identities from other HIEs		X
Management of user credentialing information (including medical credentials as needed to inform network roles)	X	
Support of a HIE-level, non-redundant methodology for managed identities		X
<i>Management Services</i>		
Management of available capabilities and services information for connected user organizations and other HIEs		X
HIE system security including perimeter protection, system management and timely cross – HIE issue resolution	X	
Temporary and permanent de-authorization of direct users when necessary	X	
Temporary and permanent de-authorization of third party users when necessary		X
Emergency access capabilities to support appropriate individual and population emergency access needs	X	

Appendix II: HIE Data Elements

Although the use case does not specifically define what data constitutes a full set of medication information as it will be defined by the SHIN-NY architecture process in the future, it is expected that the information will be restricted to the information consumers generally need to provide when visiting a physician, hospital, or pharmacy such as: demographic information sufficient to help identify the consumer; financial information sufficient for insurance eligibility checking and claims processing; and basic clinical information including allergies to medication.

In addition, sufficient information will be available to enable the creation, update, viewing of both current and past medication records. To implement this use case within the context of the HEAL NY Phase 5 Health IT grant, a data listing is described below, which is not inclusive but rather is illustrative of the types of data elements various stakeholders and SMEs felt were important.

Each data element in this listing is mapped to possible implementation in 2 scenarios as described in the use case: Consumer’s Direct Access to their Medication and Laboratory Information in a RHIO

Item	Consumer’s Direct Access
<p>Demographics - examples may include:</p> <ul style="list-style-type: none"> • Name • Age • Gender • Primary language spoken • Randomized data linker 	X
<p>Emergency Contact Information</p>	X
<p>Allergies - examples may include:</p> <ul style="list-style-type: none"> • Allergies to medications • Significant food allergies • Latex • Randomized data linker 	X
<p>Current and Past Medication Records - examples may include:</p> <ul style="list-style-type: none"> • Long-term maintenance medications • Other prescribed medications • Over the counter medications taken in the last 5-7 days 	X

<ul style="list-style-type: none">• Administration of blood/blood products <p>With the following data elements</p> <p><i>From Hospitals and Physician Offices</i></p> <ul style="list-style-type: none">• Randomized data linker• Med Rx orders• Med Rx order number	
<p><i>From Pharmacy (Rx, Med Rx filled)</i></p> <ul style="list-style-type: none">• Med order number• Med names, dose, frequency, and route• Randomized data linker	

Appendix III: Stakeholder Description

The following list of stakeholders and their definitions are for discussion purposes within the context of the Connecting New Yorkers to Clinicians Use Case.

Stakeholders	Working Definition
Patient	Members of the public who require healthcare services from ambulatory, emergency department, physician's office, nursing home and adult care agency environments.
Clinician	In ambulatory, emergency department, physician's office, nursing home and adult care agency settings, the healthcare providers within Healthcare Delivery Organizations with direct patient interface in the delivery of care including physicians, nurses, and clinical supervisors.
Healthcare delivery organization	Organizations such as hospitals and physician practices that manage the delivery of care.
Public Health Agencies (local/state/federal) and their partners	Local, state, and federal government organizations and personnel that exist to help protect and improve the health of their respective constituents. Their partners include any individual/associate or organization at national, state, regional or local levels who works with other partners toward a common public health goal. A critical effort under the HEAL NY grant is collecting health information to enhance the preservation and improvement of public health.
New Yorker/Patient	The individual who receives healthcare services and selects a steward of consumer access services to maintain their personal health record consisting of registration data and medication history. This individual shall determine which stakeholders are authorized to review, access, and update their personal health record.
Authorized family member/caregiver	A person or person(s) who have been granted authority to act on a consumer's behalf regarding actions taken with the consumer's personal health record system.
Data providers	Medical laboratories, radiology departments, etc. either in a hospital or ambulatory environment, which may participate as a data or network system.
Pharmacies	The organization that dispenses pharmaceuticals to consumers, utilizes data to check for contraindications and allergies, may participate as an intermediary or subnetwork provider of data on dispensed medications, or even as a provider of PHR services.
Payers	The organization that pays for healthcare claims, may participate as a data or network system of claimed medications, and can act as a provider of PHR services.
Pharmacy Benefit Managers	The organization that has delegated authority from the payer to process pharmaceutical claims, intermediary or

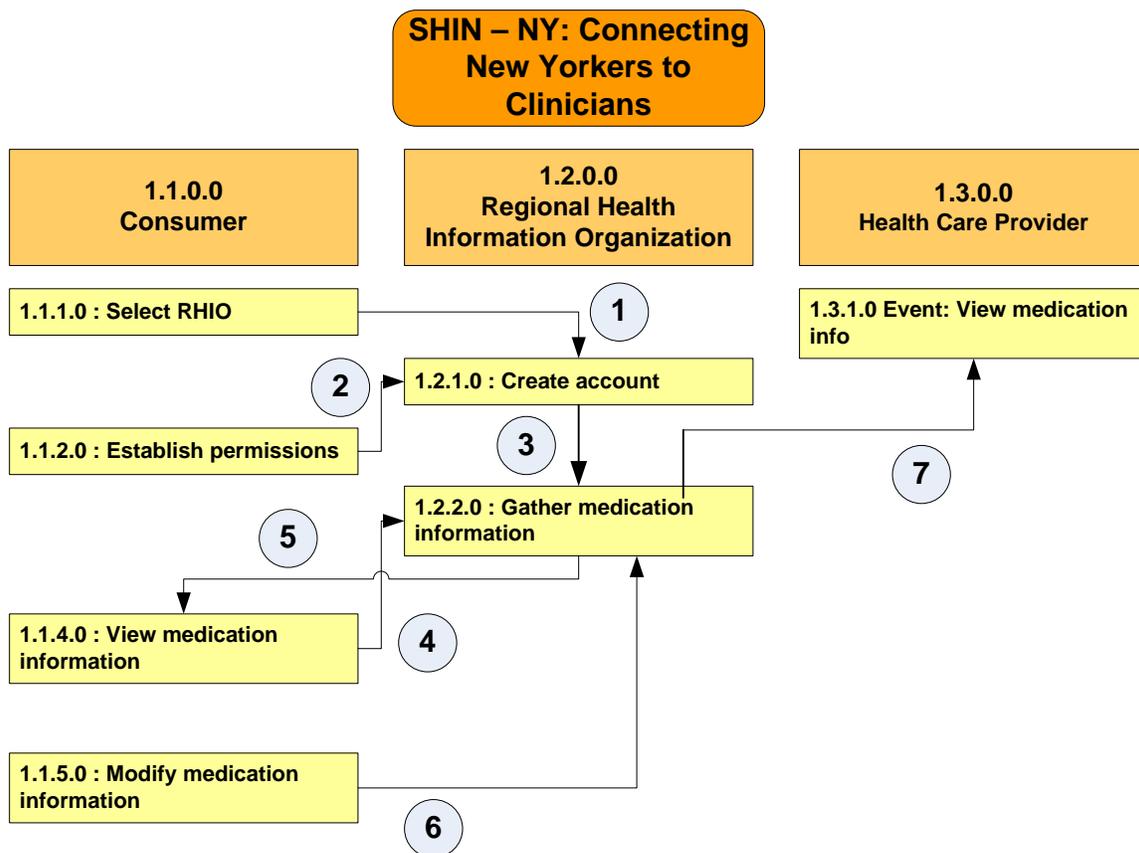
	subnetwork to provide data for medication history, and can act as a provider of PHR services.
Employers	The organizations that employ the consumer, provide insurance coverage for pharmaceuticals, and can act as a provider of PHR services.
RHIO Technical Vendor (HISP)	An organization that supports secure and reliable technical infrastructure for RHIO and health delivery agencies involved in the management of health information.

Appendix IV: Detail of SHIN - NY: Connecting New Yorkers to Clinicians Use Case Perspectives and Scenarios

**SHIN – NY: Connecting
New Yorkers to
Clinicians**

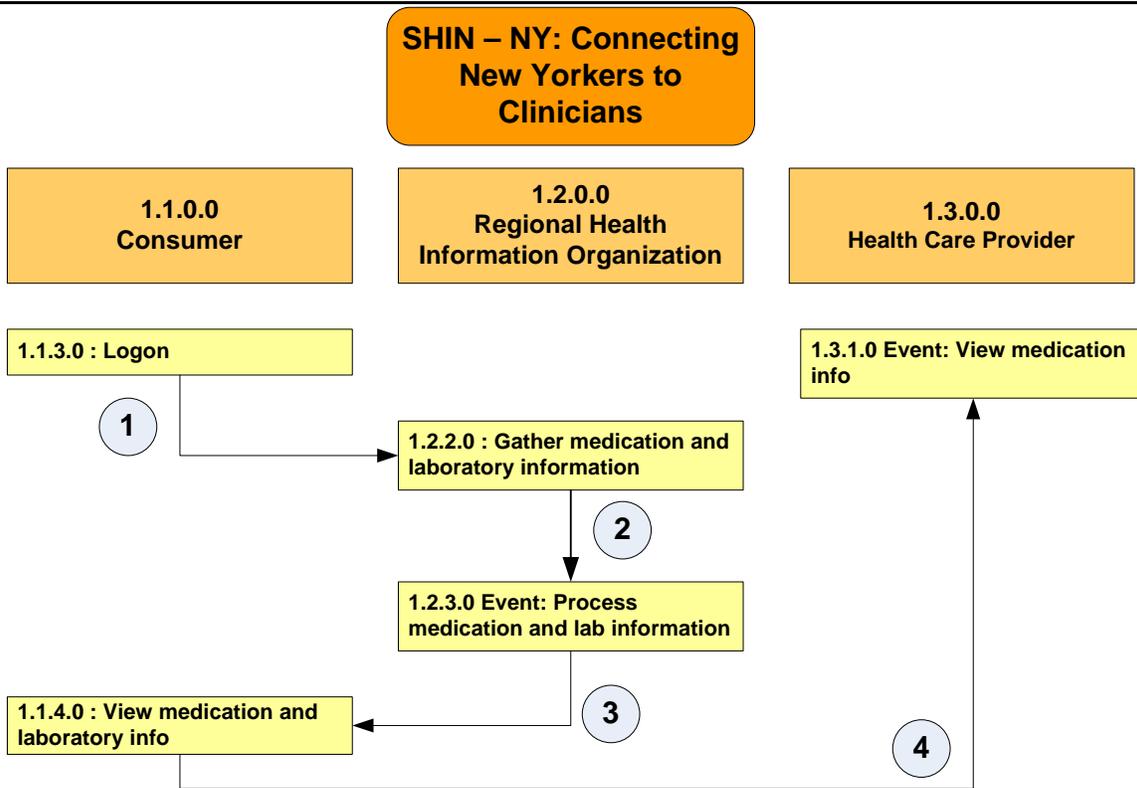
1.1.0.0 Consumers	1.2.0.0 Regional Health Information Organization	1.3.0.0 Health Care Provider
<p>1.1.1.0 Event: Select RHIO</p> <p>1.1.1.1 Provide certain identifying info.</p> <p>1.1.1.2 Provide consent to privacy and other NYHISPC compliant documents</p>	<p>1.2.1.0 Event: Create account</p> <p>1.2.1.1 Confirm consumer identity</p> <p>1.2.1.2 Verify consumer consent and ensure NYHISPC compliances</p> <p>1.2.1.3 Create account</p> <p>1.2.1.4 Maintain permissions for access and information sharing</p>	<p>1.3.1.0 Event: View medication info</p> <p>1.3.1.1 Submit authentication information and patient authorization to RHIO</p> <p>1.3.1.2 Receive medication info</p>
<p>1.1.2.0 Event: Establish/Change Permission</p> <p>1.1.2.1 Authenticate to the system</p> <p>1.1.2.2 Establish/Change Permission</p>	<p>1.2.2.0 Event: Gather medication info</p> <p>1.2.2.1 Receive consumer request</p> <p>1.2.2.2 Confirm consumer identification</p> <p>1.2.2.3 Transmit request for medication info</p> <p>1.2.2.4 Receive medication info</p> <p>1.2.2.5 Acknowledge receipt of medication info</p> <p>1.2.2.6 Log the transaction</p>	<p>1.3.2.0 Event: Integrate registration data into EHR system</p> <p>1.3.2.1 Transmit request for registration info to RHIO</p> <p>1.3.2.2 Accept registration data into EHR system</p> <p>1.3.2.3 Confirm registration data integrity</p> <p>1.3.2.3a Produce exception list of errors</p> <p>1.3.2.4 Parse and validate results content</p> <p>1.3.2.5 Acknowledge receipt of registration data</p> <p>1.3.2.6 Log the transaction</p>
<p>1.1.3.0 Event: Logon to the system</p> <p>1.1.3.1 Authenticate to the system</p>	<p>1.2.3.0 Event: Process medication info</p> <p>1.2.3.1 Receive and validate query</p> <p>1.2.3.2 Authenticate and verify the authorization of the requestor</p> <p>1.2.3.3 Transmit requested lab/med info to authorized system</p> <p>1.2.3.4 Log the transaction</p>	<p>1.3.3.0 Event: Process requested data</p> <p>1.3.3.1 Receive and validate query</p> <p>1.3.3.2 Authenticate and verify the authorization of the requestor</p> <p>1.3.3.3 Transmit requested lab/med info to authorized system</p> <p>1.3.3.4 Log the transaction</p>
<p>1.1.4.0 Event: View medication info</p> <p>1.1.4.1 Authenticate to the system</p> <p>1.1.4.2 Request data</p> <p>1.1.4.3 Receive data</p>	<p>1.2.4.0 Event: Close account</p> <p>1.2.4.1 Receive and validate query</p> <p>1.2.4.2 Authenticate and verify the authorization of the requestor</p> <p>1.2.4.3 Terminate account</p> <p>1.2.4.3a Transmit requested lab/med info to authorized system</p> <p>1.2.4.4 Transmit confirmation to consumer</p> <p>1.2.4.5 Log the transaction</p>	
<p>1.1.5.0 Event: Modify medication info</p> <p>1.1.5.1 Authenticate to the system</p> <p>1.1.5.2 Request data</p> <p>1.1.5.3 Receive data</p> <p>1.1.5.4 Modify data</p> <p>1.1.5.4a Annotate data</p> <p>1.1.5.5 Transmit modified and/or annotated data</p> <p>1.1.5.6 Transmit request to modify and/or correct data</p>		
<p>1.1.6.0 Event: Close account</p> <p>1.1.6.1 Request to close account</p> <p>1.1.6.1a Request lab/med info sent to another RHIO</p> <p>1.1.6.2 Receive confirmation of account closure</p> <p>1.1.6.2a Receive confirmation of medication info transmission to another RHIO</p>		

The visual above depicts a combination of all events, primary and alternate, used in the scenario flows which are described in further detail in the tables that follow.



Consumer’s Direct Access to their Medication and Laboratory Information (Year 1 and 2) Scenario Flow:

1. Consumer selects RHIO to provide PHR services..
2. Consumer establishes permissions for access to account and rules for medication information sharing in an emergency event.
3. RHIO creates access control rules to medication information based on consumer’s consent.
4. Consumers directly access the RHIO consumer interface to request their medication information.
5. Consumers receive medication information from their RHIO consumer interface, after logon to the system (this event is not displayed to simplify the diagram).
6. Consumer modifies registration summary & medication information and transmits to provider of PHR services.
7. Health care providers receive medication information from RHIO with patient’s consent.



Consumer’s Indirect Access to their Medication and Laboratory Information via Authorized Exchange of Data from different RHIOs (Future) Scenario Flow:

1. Consumer accesses PHR account or permits health care provider staff access to PHR account at any RHIO that consumer has given consent to access to their medication and laboratory information in an emergency event.
2. RHIO verifies consumer permission to access medication and laboratory information at other RHIOs and sends the request for medication and laboratory information to the identified and authorized RHIO.
3. Consumers receive medication and laboratory information.
4. Consumer share medication and laboratory with the health care providers.

1.1 Consumer/Patient Perspective³

Code	Description	Comment
1.1.1.0	Event: Select a RHIO	Consumer selects a RHIO that will link their registration and medication information and control user access based upon consumer authorization.
1.1.1.1	Action: Provide certain identification data	Information is provided to the RHIO in order that the RHIO can uniquely confirm the consumer’s identity. Such information may include demographics and other individually identifiable information, or the elected participation is some type of controlled network as in the case of a

		payer provided PHR, whereby the payer can readily identify the individual.
1.1.1.2	Action: Provide consent to privacy and other NYHISPC compliant documents	Consumer provides consent to privacy and other NYHISPC compliant documents to the RHIO
1.1.2.0	Event: Establish/Change permissions	
1.1.2.1	Action: Authenticate to system	Establish consumer's identify and authorization. Authentication methods could include biometrics, card, token, or user ID and password, cryptographic techniques.
1.1.2.2	Action: Establish/Modify permissions for access to the system	Consumer authorizes or modifies caregivers' access. Caregivers may include health care providers, family members, and others designated by the consumer. Privacy policy for adolescents is complex and there are no fixed standards for when children gain access to their records and when they become the primary custodian and controller of who may use the record.
1.1.3.0	Event: Log on to system	
1.1.3.1	Action: Authenticate to system	Establish consumer's identify and authorization. Authentication methods could include biometrics, card, token, or user ID and password, cryptographic techniques.
1.1.4.0	Event: View medication and laboratory data	
1.1.4.1	Action: Authenticate to system	Establish consumer's identify and authorization. Authentication methods could include biometrics, card, token, or user ID and password, cryptographic techniques.
1.1.4.2	Action: Request data	The consumer sends a request to the RHIO to populate medication and laboratory records for the purpose of reviewing the data. The RHIO may seek approval from the consumer to request data from other RHIOs or data providers.
1.1.4.3	Action: Receive data	The consumer receives data for review. This data may be obtained through various mechanisms to include a web portal, automatic fax service, hardware token, smart card, a print out from a URL, automated login software, etc.
1.1.5.0	Event: Modify	
		Consumers may have the following options for

	medication and laboratory data	<p>modifying, updating, and correcting various data elements:</p> <p>(1) some data fields will permit unrestricted modifications.</p> <p>(2) some data fields may not permit consumers to edit data, but could allow annotations to be made by the consumer.</p> <p>(3) some data fields will not permit changes and consumers would need to submit requests for modifications and corrections directly to the RHIO and/or the RHIOs and data providers that are the original source of the data.</p>
1.1.5.1	Action: Authenticate to system	Establish consumer's identity and authorization. Authentication methods could include biometrics, card, token, or user ID and password, cryptographic techniques.
1.1.5.2	Action: Request data	The consumer sends a request to the RHIO to display the current registration and medication history for the purpose of obtaining the data.
1.1.5.3	Action: Receive data	The consumer receives the current PHR so that modifications can be conducted.
1.1.5.4	Action: Modify data	
1.1.5.4a	Alternate Action: Annotate data	RHIO and/or data providers may place restrictions on modification of certain data. For fields that are not modifiable by the consumer, the consumer may be able to annotate the record
1.1.5.5	Action: Transmit modified and/or annotated data	The consumer sends the data changes to the RHIO via the established means of secure data transmission. This action authorizes the provider of PHR services to import data into the PHR account. In such circumstances, the consumer may wish to review or restrict the transmission of data to the PHR.
1.1.5.5a	Alternate Action: Transmit request to modify and/or correct data	RHIO and/or data provider may place restrictions on modification of certain data. Consumers may need to contact the RHIO and/or data provider to submit requests to change.
1.1.6.0	Event: Close account	Various circumstances may lead to an account closure request to include: consumer moves to a new geographical location; changes health care providers or payers; the provider of PHR services goes out of business or no longer provides this service; etc.
1.1.6.1	Action: Request to close PHR account	

1.1.6.1a	Alternate Action: Request registration and medication data sent to another provider of PHR services	The consumer may wish to change his/her designated RHIO and/or data provider and may request that existing provider of RHIO and/or data provider provide registration and medication data to new RHIO and/or data provider.
1.1.6.2	Action: Receive confirmation of account closure	
1.1.6.2a	Alternate Action: Receive confirmation of account transfer	Data may be transferred to the new RHIO and/or data provider, but authentication and permission data must be re-established with the new RHIO and/or data provider.

1.2 Regional Health Information Organization Perspective

Code	Description	Comment
1.2.1.0	Event: Create account	
1.2.1.1	Action: Confirm consumer's identity	Establish consumer's identity and authorization. Many authentication methods could be used including biometrics, card, token, or user ID and password, cryptographic techniques, etc.
1.2.1.2	Action: Create consumer's account	The RHIO establishes the private, secure account upon receiving consumer notification/request.
1.2.1.3	Action: Maintain consumer's permissions for system access	Consumer authorizes or modifies caregivers' access. Caregivers may include health care providers, family members, and others designated by the consumer.
1.2.2.0	Event: Gather laboratory and/or medication data	
1.2.2.1	Action: Receive consumer request	
1.2.2.2	Action: Confirm consumer identity	
1.2.2.3	Action: Transmit request for registration/medication data to data or network system	The RHIO requests registration and medication data from other RHIOs or data providers in accordance with consumer's permissions for data access.
1.2.2.4	Action: Receive	The RHIO will receive information via

	laboratory/medication data	secure data transmission.
1.2.2.5	Action: Acknowledge receipt of laboratory/medication data	Send acknowledgment that integrity, authenticity and completeness of data are found.
1.2.2.6	Action: Log transaction	Maintain audit trail and permission
1.2.3.0	Event: Process request for laboratory and/or medication data	Data will be processed based on consumer's permissions for data access.
1.2.3.1	Action: Receive and validate the query request	
1.2.3.2	Action: Authenticate and verify the authorization of the requestor	Establish data requestor's identification and authorization.
1.2.3.3	Action: Transmit laboratory and medication data to an authorized system	The data are transmitted to the PHR under the consumer's authority/request.
1.2.3.4	Action: Log transaction	There is an audit trail or access log for each entity that sends data to the PHR.
1.2.4.0	Event: Close account	
1.2.4.1	Action: Receive and validate query	
1.2.4.2	Action: Authenticate and verify the authorization of the requestor	
1.2.4.3	Action: Terminate account	
1.2.4.3a	Alternate Action: Transmit registration and medication data to the new RHIO	Establish consumer's identity and authorization and new RHIO' authorization. One of many authentication methods could be used (biometrics, card, token, or user ID and password, cryptographic techniques).
1.2.4.4	Action: Transmit confirmation to consumer	
1.2.4.5	Action: Log transaction	Maintain audit trail and permission

1.3 Health Care Provider Perspective

Code	Description	Comment
1.3.1.0	Event: View registration and/or medication data	
1.3.1.1	Action: Submit authentication information to PHR	Establish health care provider's identify and authorization. The PHR system will confirm the health care provider's rights to access the consumer's PHR account and their data. Authentication information may be controlled by numerous rule sets. For

		example, access parameters could be set to allow continuous access by the health care provider, access could be token or password based, or if the PHR is resident in a portable device in the possession of the consumer, accessing the device by a compatible system could allow access to the data.
1.3.1.2	Action: Receive laboratory and medication data	Once the system verifies the health care provider's identity and authorization, data are transmitted to the health care provider.
1.3.2.0	Event: Integrate registration data into EHR or other care system	This event pertains only to health care providers with EHR systems. Health care providers may use imported consumer's PHR data to help complete other health IT transactions. Therefore, a mechanism is needed to import PHR data into their EHR. The incorporation of registration data are within scope of this use case, the incorporation of medication and laboratory data is desirable but can be considered out of scope.
1.3.2.1	Action: Transmit request for laboratory/medication data to provider of PHR services	The EHR system opens and parses each electronic result. Individual records are checked for appropriate information, completeness, proper codes, and patient identifying information.
1.3.2.2	Action: Accept data into EHR system	As many health care providers may use PHR data for clinical or treatment decisions, the EHRs will need to be able to identify the source of the data. A mechanism for flagging data changes may include various forms of EHR system functionality.
1.3.2.3	Action: Confirm data integrity	Upon receiving the message set, the health care provider's system confirms that the message was received in a complete and unchanged format. Individual records are checked for properties such as required information, completeness, proper codes, and patient identification.
1.3.2.3a	Alternate Action: Produce exception list of errors	When inbound data cannot be unequivocally matched with the EHR, an

		exception list is produced to allow human resolution.
1.3.2.4	Action: Parse and validate results content	The EHR system opens and parses each electronic result. Individual records are checked for appropriate information, completeness, proper codes, and patient identifying information.
1.3.2.5	Action: Acknowledge receipt of registration and medication data	Send acknowledgment that integrity, authenticity and completeness of data are found.
1.3.2.6	Action: Log transaction	There is an audit trail or access log for each entity that accesses the PHR.
1.3.3.0	Event: Process requested data	Consumers may request that information from their health care providers be transmitted to their PHR accounts.
1.3.3.1	Action: Receive and validate the query request	
1.3.3.2	Action: Authenticate and verify the authorization of the requestor.	Establish data requestor's identify and authorization.
1.3.3.3	Action: Transmit laboratory and medication data to an authorized system	The data are transmitted to the PHR under the consumer's authority/request.
1.3.3.4	Action: Log transaction	There is an audit trail or access log for each entity that sends data to the PHR.