

**Statewide Health Information Network for New York (SHIN-NY)  
Health Information Exchange (HIE) for Public Health Use Case  
(Patient Visit, Hospitalization, Lab Result and Hospital Resources Data)**

**Version 1.0**

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## 1. Executive Summary

**Background:** Public health is concerned with threats to the overall health of a community based on population health analysis. The ability to rapidly detect, respond and efficiently prevent these threats is essential to the New York State Department of Health's (NYSDOH) mission to protect and promote the health of New Yorkers. Interoperable electronic health records (EHR) will not only improve individual patient care but also enhance public health practice such as infectious disease case investigation, monitoring hospital resources utilization/availability and health surveillance. These data can be communicated with and among various local, state and federal health agencies to support public health activities at all levels of government.

**Broad Area:** Support the implementation of New York's health information infrastructure to improve public health practice using common health information exchange (HIE) protocols and services via the Statewide Health Information Network – New York (SHIN-NY) and supporting interoperable EHR adoption. .

**Specific Use Case Area:** Exchange of patient visit, hospitalization, lab result and hospital resource data between the SHIN-NY implemented at the regional level by Regional Health Information Organizations (RHIO), the NYSDOH and its authorized public health partners in standardized format with less than one day lag time for public health needs. This use case aligns with and builds upon the Office of the National Coordinator for Health Information Technology (ONC) Harmonized Use Case for Biosurveillance, including the joint response put forth by NYSDOH and NYCDOHMH for the Center for Disease Control and Prevention (CDC)'s HIE program and aligns with nationwide health information network (NHIN).

## 2. Description of HIE Use Case for Public Health

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, NYCDOHMH 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, anonymization, de-identification, aggregation, validation and transmission of relevant patient care and hospital resource data.

The use case addressed in this document is for the exchange of patient visits, hospitalization, and lab result and hospital resource data from the SHIN-NY in a standardized format and timely manner to the NYSDOH and its authorized public health partners. 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 enable centralized querying of multiple RHIOs for public health purposes. 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 public health authorities need to rapidly respond to new and emerging public health threats, the SHIN-NY must also support distributed query architecture, with updateable public health queries. In addition, it needs to provide the ability for a range of potential options to provide all levels of public health with the data they need for decision making, while offering the maximum possible protection to patient privacy. These will include investigation of filtering for specific diagnoses of interest, anonymizing line lists so that they can be re-identified if needed for public health investigation, and use of aggregate counts of both patient care and hospital resources data using standardized reporting criteria. Data provided by the RHIOs must follow standards and formats defined by the NYSDOH and federal government such as HL7 and SNOMED.

### **3. Scope of HIE Use Case for Public Health**

This use case will present the Public Health HIE workflow, perspectives, and pre- and post- conditions. The grant projects will iteratively refine this document and maintain it so that it can be translated into technical requirements.

This use case primarily includes the actions that are required to exchange specific patient care and hospital resources information and share these data with the NYSDOH to support public health needs including infectious disease case investigation, health surveillance and response to emergency events. However, the policies, processes and standards may be applicable to many types of public health surveillance including environmental health, injury, and cancer surveillance.

The use case scope includes the following:

1. Data routinely entered into hospital, ambulatory care, and other ancillary care data systems including physician offices, and pharmacies. These may include: patient demographics; diagnostic data; chief complaints; triage data; laboratory orders and results; physician orders; admission, discharge and transfer data; and hospital and other health care facilities resources data.
2. Health care facilities including: hospitals, physician offices, and affiliated clinical personnel who have clinical and hospital resources data of public health significance.
3. The authorized local, regional, state, and federal public health personnel who monitor and manage public health surveillance and hospital resources data.

To accomplish the charge, two broad categories of essential HIE data shall be electronically available and interconnected by RHIOs and thereby available to the NYSDOH via a Universal Public Health Node. The data are: Patient Care including Visit, Hospitalization and Lab Result, and Hospital Resources including Institution data, Unit-level census data, and Facility utilization data. Detailed description of a minimum HIE dataset that shall be implemented in the first two years and an optional HIE dataset

that shall be implemented in the third year will be described in Appendix I.

The scope of this use case will include hospitals and could include physician offices and pharmacies, if feasible. Other ONC use cases such as the Harmonized Use Case for EHR (Laboratory Result Reporting) might be relevant to RHIOs who wish to implement electronic laboratory data in physician office setting.

#### **4. Stakeholders for HIE Use Case for Public Health**

- Regional Health Information Organizations
- Healthcare Service Organization
- Public Health agencies and their partners
- Other government and private organization
- Clinician
- Laboratory organization
- Patient
- Public

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

#### **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. In addition, to support the implementation of electronic laboratory data in physician office setting, pre-conditions that are described in the ONC Harmonized Use Case for EHR (Laboratory Result Reporting) must be in place before the third year of the HEAL NY 5 grant.

1. Established technical and policy infrastructures to support the ability to respond to patient-level transactional inquiries (the only function routinely supported by most RHIOs designed for clinical data exchange), generation of line-list reports according to preset criteria (e.g., all patients with a diagnosis of pneumonia), identifying services for de-identifying and re-identifying line-list data for epidemiologic case follow-up, and responding to analytic (e.g., aggregation/summarization) queries. The functions can be conceptualized as collectively comprising a new component called the “Universal Public Health Node” (UPHN).
2. Procedures and agreements supporting data exchange including privacy protections, security or confidentiality breaches or misuses, secondary data uses and appropriate data sharing agreements/business associate agreements.
3. Agreed to UPHN data and messaging standards as well as method(s) for data categorization, anonymization, re-identification and aggregation, and defined criteria for sharing data of public health significance.
4. Maximum effort to assure data quality and integrity.

5. RHIO's ability to electronically collect, process, and transmit pertinent public health data in a secure and timely fashion, using to-be-defined HIE and vocabulary standards.

## 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. RHIOs will be able to automatically exchange patient visit, hospitalization, lab and hospital resource data with the NYSDOH and its authorized public health partners.
2. Data will be anonymized or aggregated or re-identified automatically according the agreed methods with the RHIO with maximum data quality assurance.
3. Data messages will be formulated following a standard structure, coding, and minimal required set of information.
4. Data will be transmitted in real-time, when feasible, but with a periodicity of no longer than 24 hours.
5. RHIOs will support the privacy and security of patient health information, and also be responsive to dynamic requests for re-identification for authorized public health investigations.
6. Appropriate entities are authorized and authenticated to send or receive data.
7. System transactions are auditable.

## 7. Details of Use Case Scenarios and Perspectives

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

1. *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.
2. *The New York State Department of Health* is the premier public health agency in NYS with the statutory authority to collect all information for reportable diseases and has regulatory oversight over health facility and provider entities.
3. *New York State Department of Health public health partners*, including 57 county health departments and the New York City Department of Health and Mental Hygiene (NYCDOHMH), have the major responsibility for provision of public health services at the local level. This perspective also includes any individual/associate or organization at national, state, regional or local levels who works with other partners, including the NYSDOH, toward a common public health goal.

4. *Consumers* include any New Yorker who might be in need of, or benefit from, public health services.

Data flow models required to accomplish this use case is described in the following scenarios, which represent a broad range of public health practice from infectious disease case investigation to chronic disease surveillance. A detailed description and flow diagram of each scenario is included in Appendix III.

1. *Reportable Disease Investigation*: In response to a suspect or confirmed case report of reportable disease case (food borne poisoning), the NYSDOH, NYCDOHMH and other public health authorities can query multiple RHIOs using a standard interface and receive additional clinical information regarding past medical history, treatment, etc. If the NYSDOH has a need for further investigation of certain cases, a data linker for the record of interest will be send back to RHIO to request for re-identification and additional information. With a distributed query architecture the NYSDOH can also request data on additional reportable disease conditions using updateable public health queries
2. *Influenza Surveillance and Response*: For regular surveillance and in response to an influenza outbreak, RHIOs would send patient care and hospital resources data to the NYSDOH, NYCDOHMH and other public health authorities. This will allow epidemiologists to measure illness severity by monitoring the percentage of persons with influenza-like illness (ILI) that are admitted to hospitals and the hospital capacity/availability to respond to an influenza outbreak or pandemic.
3. *Asthma Surveillance*: For ongoing asthma surveillance and intervention, the RHIO will provide linked data that includes: hospital inpatient, hospital outpatient, emergency department (ED), physician office visits, and pharmacy and lab data to the NYSDOH. This will allow public health staff to better measure asthma diagnosis and attack prevalence, health care utilization, disease management, care coordination, as well as monitor the trend of asthma hospitalizations, ED and physician office visits. This information will assist with identifying high-risk asthma populations and opportunities for effective interventions.
4. *Maternal and Infant Surveillance*: For ongoing maternal and infant health surveillance and monitoring of patient's access to and utilization of the maternal and perinatal health care system, the RHIO will provide linked data that will include hospital inpatient, hospital outpatient, ED data, physician office visit, laboratory results and pharmacy data to the NYSDOH. This will allow public health staff to better monitor access to care, types of care, birth outcomes and follow up care for the mother and infant. This information will also allow public health staff to risk-adjust for the appropriate prenatal/perinatal services and birth outcomes and identify high-risk populations and opportunities for effective interventions.

**Appendix I: Health Information Exchange (HIE) Data Elements for Public Health**

To implement this use case, within the first two years of the HEAL NY 5 grant, a minimum HIE Dataset with two broad categories of essential data shall be electronically available and interconnected by RHIOs and thereby available to the NYSDOH via a Universal Public Health Node: patient care, and hospital resource utilization and capacity data. The patient care data category includes four subcategories of limited patient demographic data, clinical data, laboratory and radiology test orders and laboratory and radiology test results. It is expected that the scope of patient care data will include outpatient, inpatient, and emergency department patient classes. The hospital resource utilization and capacity data category includes three subcategories of institution data, unit-level census data, and facility utilization data.

**Minimum Health Information Exchange (HIE) Dataset  
 With Crosswalk to Use Case Scenario**

Minimum Health Information Exchange (HIE) Dataset	Reportable Disease Investigation	Influenza Surveillance and Response	Asthma Surveillance	Maternal and Infant Health Surveillance
<i>Patient Care</i>				
<i>Limited Patient Demographic Data</i>				
Encounter date (visit date, admission date, discharge date)	X	X	X	X
Patient information (date of birth, age, gender, resident zip code, state of residence)	X	X	X	X
Date/time of last record update and randomized data linker	X	X	X	X
<i>Clinical Data</i>				
Patient class (outpatient, inpatient, and ER)	X	X	X	X
Diagnosis/injury code (ICD9 6 digits: Admission DX, Primary Discharge DX and Other Discharge DXs)	X	X	X	X
Diagnosis type	X	X	X	X
Diagnosis date and time, and discharge disposition	X	X	X	X
Chief complaint	X	X	X	X

Date and time of first symptoms of illness	X	X	X	X
<i>Laboratory and Radiology Test Orders</i>				
Order number	X	X		X
Order test	X	X		X
Randomized data linker	X	X		X
<i>Laboratory and Radiology Test Results</i>				
Reporting lab ID	X	X		X
Performing lab ID	X	X		X
Report date/time	X	X		X
Report status	X	X		X
Collection date	X	X		X
Collection method	X	X		X
Specimen	X	X		X
Specimen site	X	X		X
Test ordered	X	X		X
Test results	X	X		X
Organism identified/result other than organism	X	X		X
Method type	X	X		X
Result unit	X	X		X
Test interpretation	X	X		X
Susceptibility test interpretation	X	X		X
Test status	X	X		X
Randomized data linker	X	X		X
<i>Dynamic Resource Utilization Data</i>				
<i>Institution Data</i>				
Hospital system		X		
Main facility ID/name		X		
Physical facility address	X	X		
Total number of beds in institution		X		
<i>Unit-level Census Data</i>				
Unit name		X		
Number of beds available by unit		X		
Emergency room triage marginal		X		
Capacity as a percentage and head-count		X		
Number of patients by unit		X		
<i>Facility Utilization Data</i>				
Admissions in last 24 hours at institution		X		

Discharges in last 24 hours at institution		X		
Deaths in last 24 hours at institution		X		
Date and time of report		X		

In the third year of the HEAL NY 5 grant, an optional HIE dataset and patient care data category of the minimum HIE dataset with extended scope of physician offices, and pharmacies shall be implemented by RHIOs and thereby available to the NYSDOH via a Universal Public Health Node. Although it is expected that in the first two years RHIOs will work with NYSDOH to define this dataset in more detail, at minimum the following essential patient care data elements will be included.

**Optional Health Information Exchange (HIE) Dataset  
 With Crosswalk to Use Case Scenario**

<b>Optional Health Information Exchange (HIE) Dataset</b>	<b>Reportable Disease Investigation</b>	<b>Influenza Surveillance and Response</b>	<b>Asthma Surveillance</b>	<b>Maternal and Infant Health Surveillance</b>
<i>Patient Care</i>				
<i>Limited Patient Demographic Data</i>				
Patient information (race/ethnicity, resident county)	X	X	X	X
Height and weight	X	X	X	X
<i>Clinical Data</i>				
Patient class (physician office visits)				
CPT4 Codes (5 digits)	X	X	X	X
Procedure code modifier (2 digits)	X	X	X	X
Procedure codes (if different)	X	X	X	X
Symptom list	X	X	X	X
Problem list	X	X	X	X
Med Rx orders	X	X	X	X
Med Rx order number	X	X	X	X
<i>Pharmacy (Rx, Med Rx filled)</i>				
Med order number	X	X	X	X
Med names, dose, frequency, and route	X	X	X	X

## Appendix II: Stakeholder Description

The following list of stakeholders and their definitions are for discussion purposes within the context of the HIE use case for public health.

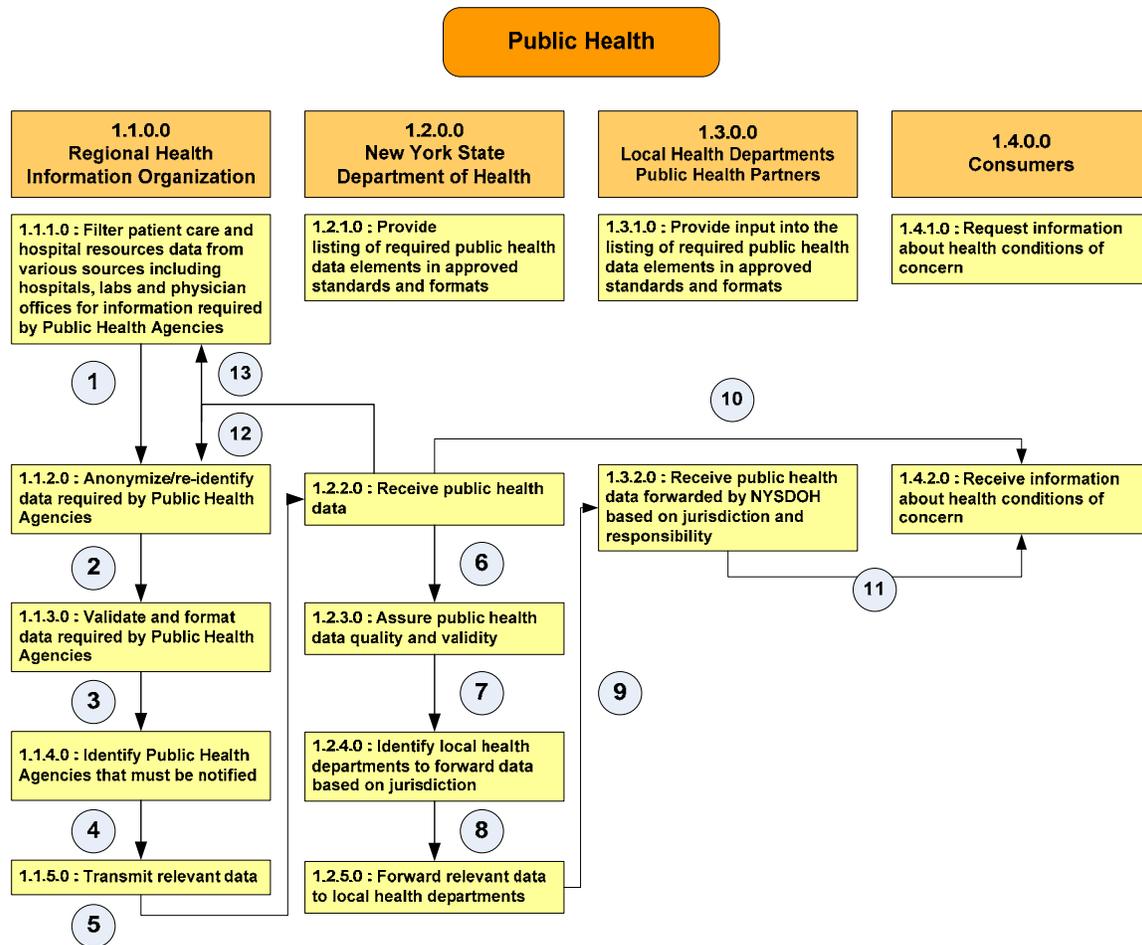
Stakeholders	Working Definition
<b>Patient</b>	Members of the public who require healthcare services from ambulatory, emergency department, physician’s office, nursing home and adult care agency environments.
<b>Clinician</b>	In ambulatory, emergency department, physician’s office, nursing home and adult 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.
<b>Regional Health Information Network</b>	An electronic network for exchanging health and patient information among healthcare delivery organizations.
<b>Healthcare delivery organization</b>	Organizations such as hospitals and physician practices that manage the delivery of care.
<b>Laboratory organization</b>	Medical laboratories, in either in a hospital or ambulatory environment, which analyze specimens as ordered by clinicians to assess the health status of patients. Laboratories, depending on how they are affiliated with hospitals, can be part of either Individual Health Care Facilities or Integrated Health Care Data Suppliers.
<b>Public Health Agencies (local/state/federal) and their partners</b>	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.
<b>Resource suppliers</b>	Private and government organizations and personnel, other than Public Health Agencies, who have a stake in public health by supporting public health processes (e.g., USDA food inspectors, American Red Cross, pharmacies, United States Department of Homeland Security) and help address public health events.
<b>Public</b>	Consumers of health care services and information, stakeholders in the overall health care system, and users of public health services.

**Appendix III: Detail of Health Information Exchange (HIE) Use Case for Public Health (Patient Visit, Hospitalization, Lab Result and Hospital Resources Data) Perspectives and Scenarios**

The visual below 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.

**Public Health**

1.1.0.0 Regional Health Information Organization	1.2.0.0 New York State Department of Health	1.3.0.0 Local Health Departments Public Health Partners	1.4.0.0 Consumers
<p>1.1.1.0 Event: Filter data from various sources including hospitals, labs and physician offices for information required by Public Health Agencies</p> <p>1.1.1.1 Filter collected data records to identify public health data elements</p> <p>1.1.1.2 Aggregate identified data</p>	<p>1.2.1.0 Event: Provide listing of required public health data elements in approved standards and formats</p> <p>1.2.1.1 Notify RHIOs of data that must be transmitted to Public Health Agencies</p>	<p>1.3.1.0 Event: Provide input into the listing of required public health data elements in approved standards and formats</p> <p>1.3.1.1 Notify NYSDOH of data that might be needed for Local health departments/public health partners</p>	<p>1.4.1.0 Event: Identify and communicate about health conditions of concern</p> <p>1.4.1.1 Notify NYSDOH of health conditions that might be of concern for the public</p>
<p>1.1.2.0 Event: Anonymize/re-identify data required by Public Health Agencies</p> <p>1.1.2.1 Review identified data to ensure full privacy compliance</p> <p>1.1.2.2 Embed randomized data linker to allow authorized re-identification and longitudinal data matching</p> <p>1.1.2.3 Re-identify data based on authorized request approved standards</p>	<p>1.2.2.0 Event: Receive public health data</p> <p>1.2.2.1 Receive public health data</p> <p>1.2.2.2 Verify authenticity of transmission content</p> <p>1.2.2.3 Acknowledge receipt of data</p> <p>1.2.2.4 Log receipt of data</p>	<p>1.3.2.0 Event: Receive public health data forwarded by NYSDOH based on jurisdiction</p> <p>1.3.2.1 Receive public health data</p> <p>1.3.2.2 Verify authenticity of transmission content</p> <p>1.3.2.3 Acknowledge receipt of data</p> <p>1.3.2.3 Log receipt of data</p>	<p>1.4.2.0 Event: Receive information about health conditions of concern</p> <p>1.4.2.1 Receive from public health agencies information about health conditions of concern</p>
<p>1.1.3.0 Event: Validate and format data required by Public Health Agencies</p> <p>1.1.3.1 Validate data against approved standards and quality assurance procedures</p> <p>1.1.3.2 Transform data into approved standards and formats</p>	<p>1.2.3.0 Event: Assure public health data quality and validity</p> <p>1.2.3.1 Design, manage, deploy, and control data quality initiative based on approved standards</p> <p>1.2.3.2 Assess data validity against approved standards</p> <p>1.2.3.3 Acknowledge the validity and quality of data</p>		
<p>1.1.4.0 Event: Identify Public Health Agencies that must be notified</p> <p>1.1.4.1 Determine which Public Health Agencies require notification</p>	<p>1.2.4.0 Event: Identify local health departments/public health partners to forward data based on jurisdiction</p> <p>1.2.4.1 Determine which local health departments/public health partners to forward data based on jurisdiction</p>		
<p>1.1.5.0 Event: Transmit relevant data</p> <p>1.1.5.1 Send results to Public Health Agencies</p> <p>1.1.5.2 Log communication between RHIOs and Public Health Agencies</p>	<p>1.2.5.0 Event: Forward relevant data to local health departments/public health partners</p> <p>1.2.5.1 Send results to local health departments/public health partners</p> <p>1.2.5.2 Log communication between NYSDOH and local health departments/public health partners</p>		



***Influenza Surveillance and Response Scenario Flow:***

1. Data from patient-clinician encounters in individual facilities (e.g., hospitals, ambulatory, Emergency Room (ER), local labs, and pharmacy and physician offices) and hospital resources (e.g. number of beds) are filtered to identify data relevant to influenza surveillance and response. Data are aggregated by pre-defined criteria and approved standards. The aggregation can be either geographical (zip/county) or temporal (longitudinally link encounter data at individual level).
2. Not applicable.
3. Data are validated for quality and integrity and formatted for transmission using approved standards.
4. Public Health Agencies that request data are identified.
5. Data are transmitted to the New York State Department Of Health (NYSDOH).
6. Data are received and acknowledged by the NYSDOH.
7. Data are assessed for quality and validity by the NYSDOH.
8. Local health departments are identified for data distribution based on jurisdiction and needs.
9. Relevant influenza surveillance and hospital resource data and reports are provided to the local health department to assist with influenza surveillance and response activities.

10. Influenza surveillance data and reports are provided to consumers by the NYSDOH for increasing awareness of asthma conditions in order to assist with interventions.
11. Influenza surveillance report and information are provided to the public by local health departments for increasing awareness of local influenza conditions in order to assist with interventions.

***Reportable Disease Investigation Scenario Flow:***

1. Data from patient-clinician encounters in individual facilities (e.g., hospitals, ambulatory, ER, local labs, and physician offices) are filtered to identify data relevant to reportable disease conditions.
2. Data are anonymized by approved standards and embedded with a randomized data linker for re-identification.
3. Data are validated for quality and integrity and formatted for transmission using approved standards.
4. Public Health Agencies that request data are identified.
5. Data are transmitted to the NYSDOH.
6. Data are received and acknowledged by the NYSDOH.
7. Data are assessed for quality and validity by the NYSDOH.
8. Local health departments are identified for data distribution based on jurisdiction and needs.
9. Relevant reportable disease data and reports are provided to local health department to assist with infectious disease surveillance and investigation activities.
10. Reportable disease data and reports are provided to consumers by the NYSDOH for increasing awareness of reportable disease conditions in order to assist with interventions.
11. Reportable disease report and information are provided to the public by local health departments for increasing awareness of local reportable disease conditions in order to assist with interventions.
12. If the NYSDOH has a need for further investigation of certain cases, a data linker for the record of interest will be sent back to RHIO to request for re-identification and additional information, which will then be processed and transmitted as in step 3, 4 and 5
13. With distributed query architecture the NYSDOH can also request data on additional reportable disease conditions by updating the filter criteria for patient care data at the RHIO.

***Asthma Surveillance Scenario Flow:***

1. Data from patient-clinician encounters in individual facilities (e.g., per PFI such as hospitals, ambulatory, ER, local labs, and pharmacy and physician offices) are filtered to identify data relevant to asthma surveillance. Data are aggregated by pre-defined criteria and approved standards. The aggregation can be either geographical (zip/county) or temporal (longitudinally link encounter data at individual level).
2. Not applicable

3. Data are validated for quality and integrity and formatted for transmission using approved standards.
4. Public Health Agencies that request data are notified.
5. Data are transmitted to the NYSDOH.
6. Data are received and acknowledged by the NYSDOH.
7. Data are assessed for quality and validity by the NYSDOH.
8. Local asthma partners are identified for data distribution based on jurisdiction and needs.
9. Relevant asthma data and reports are provided to local asthma partners to assist with identifying high-risk asthma populations and opportunities for effective interventions.
10. Asthma surveillance data and reports are provided to consumers by the NYSDOH for increasing awareness of local asthma conditions in order to assist with interventions.
11. Asthma surveillance report and information are provided to the public by local asthma partners for increasing awareness of local asthma conditions in order to assist with interventions.

***Maternal and Infant Health (MIH) Surveillance Scenario Flow:***

1. Data from patient-clinician encounters in individual facilities (e.g., per PFI such as hospitals, ambulatory, ER, local labs, pharmacy and physician offices) are filtered to identify data relevant to MIH surveillance. Data are aggregated by pre-defined criteria and approved standards. The aggregation can be either geographical (zip/county) or temporal (longitudinally link encounter data at individual level).
2. Not applicable
3. Data are validated for quality and integrity and formatted for transmission using approved standards.
4. Public Health Agencies that request data are notified.
5. Data are transmitted to the NYSDOH.
6. Data are received and acknowledged by the NYSDOH.
7. Data are assessed for quality and validity by the NYSDOH.
8. Local MIH partners are identified for data distribution based on jurisdiction and needs.
9. Relevant MIH data and reports are provided to local MIH partners to allow staff to risk-adjust for the appropriate prenatal/perinatal services and birth outcomes and identify high-risk populations and opportunities for effective interventions.
10. MIH surveillance data and reports are provided to consumers by the NYSDOH for increasing awareness of local MIH conditions in order to assist with interventions.
11. MIH surveillance report and information are provided to the public by local MIH partners for increasing awareness of local MIH conditions in order to assist with interventions.

## 1.1 Regional Health Information Organization Perspective

Code	Description	Comment
<b>1.1.1.0</b>	Event: Filter data from various sources including hospitals, labs and physician offices for information required by Public Health Agencies	Referencing data requirements communicated by Public Health Agencies in Event 1.3.1.0, all data that is appropriate to provide to public health agencies is identified so that it can be formatted using the approved data and technology standards to allow processing across the stakeholders in this use case.
1.1.1.1	Action: Filter collected data records to identify public health data elements	Relevant data are marked for inclusion in a transmission, via the Universal Public Health Node, to public health agencies.
1.1.1.2	Action: Aggregate identified data	All identified data are aggregated.
<b>1.1.2.0</b>	Event: Anonymize/re-identify and aggregate data required by Public Health Agencies	Data readied for transmission is anonymized to withhold direct patient identifiers. The process should allow for the data to be re-linked to a specific patient if required and authorized for public health investigation. All associated randomized links are included with the transmitted data package.
1.1.2.1	Action: Review identified data to ensure full privacy compliance	Ensure that all data included in HIE package are anonymized or aggregated and meet all applicable privacy and security considerations.
1.1.2.2	Action: Embed randomized data linker to allow authorized re-identification and longitudinal data matching	Functionality is provided to enable re-linking data to patient and create longitudinal data when required as part of an authorized public health investigation or surveillance activity.
1.1.2.3	Action: Re-identify data based on authorized request approved standards	Functionality is provided to re-identify data when required as part of an authorized public health investigation or surveillance activity.
<b>1.1.3.0</b>	Event: Validate and format data required by Public Health Agencies	Anonymized or aggregated data are formatted using approved technology and data standards.
1.1.3.1	Action: Validate data against approved standards and quality assurance procedures	Ensure the validity and quality of data meet approved requirements before transmission.
1.1.3.2	Action: Transform data into approved standards and formats	Ensure that data are transformed into approved standards and formats before transmission.
<b>1.1.4.0</b>	Event: Identify Public Health Agencies that must be notified	For RHIOs, the process to determine Public Health Agency jurisdiction and the requirement to notify is more complex because of possible multi-jurisdictions in their service area.
1.1.4.1	Action: Determine which Public Health Agencies require	Apply business rules to determine which public agencies need to be notified.

	notification	
<b>1.1.5.0</b>	Event: Transmit relevant data	Anonymized data are transmitted to public health agencies using approved data and technology standards.
1.1.5.1	Action: Send results to Public Health Agencies	Transmit the record to public health agencies; any appropriate metadata will also be sent.
1.1.5.2	Action: Log communication between RHIOs and Public Health Agencies	Any transaction must be logged; the logs must be maintained in appropriate manner.

### 1.2 New York State Department of Health Perspective

Code	Description	Comment
<b>1.2.1.0</b>	Event: Provide listing of required public health data elements in approved standards and formats	Provide the listing of essential data for reporting, and specific field information.
1.2.1.1	Action: Notify RHIOs of data that must be transmitted to Public Health Agencies	This notification will be implemented via the distributed query architecture of the Universal Public Health Node.
<b>1.2.2.0</b>	Event: Receive public health data	The NYSDOH electronically receives anonymized or aggregated data that is relevant to authorized public health activities. If data are anonymized, it will contain randomized data linking capabilities to allow public health agencies to request that the sending organizations be able to support authorized public health investigators' need for more information.
1.2.2.1	Action: Receive public health data	The data as well as any pertinent information necessary for indexing, query and routing is being provided.
1.2.2.2	Action: Verify authenticity of transmission content	Verify integrity of the transmission contents from the identified source. The data should contain appropriate patient care, hospital resource information, and other information per agreed to standards and policies.
1.2.2.3	Action: Acknowledge receipt of data	Send acknowledgment to senders that data has been received by the NYSDOH.
1.2.2.4	Action: Log receipt of data	Any receipt of data must be logged; the logs must be maintained in appropriate manner.
<b>1.2.3.0</b>	Event: Assure public health data quality and validity	In cases where the message does not meet all the integrity, quality and validity requirements, a retransmission request will be generated.
1.2.3.1	Action: Design, manage,	Develop appropriate data quality control

	deploy, and control data quality initiative based on approved standards	policies and procedures.
1.2.3.2	Action: Assess data validity against approved standards	Implement appropriate data quality control policies and procedures.
1.2.3.3	Action: Acknowledge the validity and quality of data	Send acknowledgment to senders that integrity, authenticity, quality, validity and completeness of results are acceptable.
<b>1.2.4.0</b>	<b>Event: Identify local health departments/public health partners to forward data based on jurisdiction</b>	<b>Existing relevant federal and state jurisdictional laws and data sharing agreements for public health will be used to determine the destination and content of forwarded data.</b>
1.2.4.1	Action: Determine which local health departments/public health partners to forward data based on jurisdiction	Apply business rules to determine local health departments/public health partners need to be notified.
<b>1.2.5.0</b>	<b>Event: Forward relevant data to local health departments/public health partners</b>	<b>Relevant data are transmitted to local health departments/public health partners using approved data and technology standards.</b>
1.2.5.1	Action: Send results to local health departments/public health partners	Transmit the record to local health departments/public health partners;any appropriate metadata will also be sent.
1.2.5.2	Action: Log communication between the NYSDOH and local health departments/public health partners	Any transaction must be logged; the logs must be maintained in appropriate manner.

### 1.3 Local Health Departments/Public Health Partners Perspective

<b>Code</b>	<b>Description</b>	<b>Comment</b>
<b>1.3.1.0</b>	<b>Event: Provide input into the listing of required public health data elements in approved standards and formats</b>	<b>Provide input into the listing of essential data for reporting, and specific field information.</b>
1.3.1.1	Action: Notify the NYSDOH of data that might be needed for local health departments/public health partners	A variety of methods might be necessary for this notification.
<b>1.3.2.0</b>	<b>Event: Receive public health data</b>	<b>Local health departments/public health partners electronically receive anonymized or aggregated data that is relevant to authorized public health activities within their jurisdiction/responsibility. If data are anonymized, it will contain randomized data</b>

		<b>linking capabilities to allow re-identification.</b>
1.3.2.1	Action: Receive public health data forwarded by the NYSDOH based on jurisdiction	The data as well as any pertinent information necessary for indexing, query and routing is being provided.
1.3.2.2	Action: Verify authenticity of transmission content	Verify integrity of the transmission contents from the identified source. The data should contain appropriate patient care, hospital resource information, and other information per agreed to standards and policies.
1.3.2.3	Action: Acknowledge receipt of data	Send acknowledgment to senders that data has been received.
1.3.2.4	Action: Log receipt of data	Any receipt of data must be logged; the logs must be maintained in appropriate manner.

### 1.4 Consumer Perspective

Code	Description	Comment
<b>1.4.1.0</b>	Event: Identify and communicate about health conditions of concern	Consumers identify and communicate health conditions of concern to the NYSDOH.
1.4.1.1	Action: Notify the NYSDOH of health conditions that might be of concern for the public	A variety of methods might be necessary for this notification.
<b>1.4.2.0</b>	Event: Receive information about health conditions of concern	Consumers may receive notifications that new or updated information is available.
1.4.2.1	Action: Receive from public health agencies information about health conditions of concern	Notification could be initiated through the NYSDOH or local health departments/public health partners.