

4. Understanding Clinical Data and Workflow

Understanding Surveillance Data Exchange Processes Guide and Worksheet

To properly prepare for implementing the pilot of your surveillance program and its subsequent rollout, you must understand the surveillance data exchange processes. These processes can vary depending on whether EHR data is pushed to public health via electronic case reports or pulled by public health via a querying mechanism. In addition, if a Health Information Exchange (HIE) or other information broker acts as an intermediary, you need to understand how this impacts the data exchange processes.

In this planning step, we've provided critical planning questions to help you understand the surveillance data exchange processes, and if relevant, have added questions if your exchange relies on an HIE or information broker on these processes. The questions correspond to the business process diagrams below.

The questions that you must address differ depending on whether:

- You are piloting a push or pull model of reporting
- You are asking for individual or aggregate reports
- An HIE or other information broker is acting as an intermediary

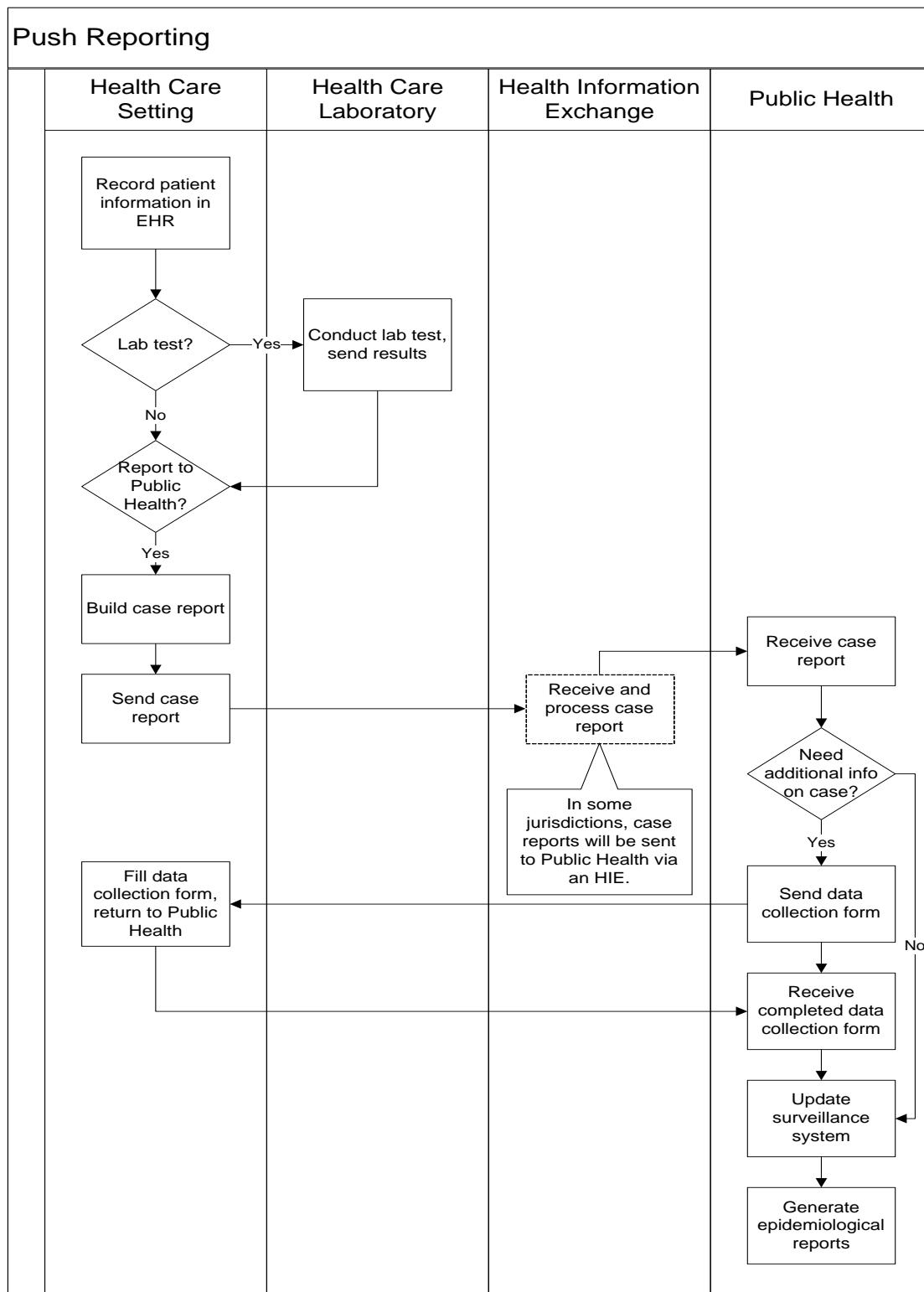
If you have not yet determined the optimal model for reporting and whether you are asking for individual or aggregate reports, *Alternative Models for Accessing EHR Data for Surveillance* in the toolkit's supplemental information can provide useful guidance when making that determination. Keep in mind that the optimal model provides for flexibility, acceptability, scalability, affordability and sustainability.

Feel free to adapt this tool to your specific surveillance program environment, including your organization and your clinical information exchange partners.

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Diagram 1: Push Reporting





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Table 1: Planning questions related to Diagram 1: Push Reporting

Entity	Activity/process	Questions to consider	Notes/comments
Health care setting	Record patient information in EHR	<ol style="list-style-type: none">Who specifically is recording the information?At what point in the clinical encounter is the information captured?Is the information of interest to public health used by clinicians to provide care or is it more of an administrative nature?	(See also <i>Defining Data Elements</i> for worksheet on this topic)
Health care laboratory	Conduct lab test and send results	<ol style="list-style-type: none">A clinical encounter may result in laboratory tests. Some positive results will be sent to public health; however, lab-based case reports are outside the scope of this tool.Is patient data transformed when sent to or received from the lab?	
Health care setting	Report to public health	<ol style="list-style-type: none">What triggers the report?<ol style="list-style-type: none">Timer (every day, etc.)Person making decision?Event (like specified diagnosis)?Clinical decision support (CDS) functionality provided by EHR?How are trigger events encoded in the EHR?Do these trigger events align with local, state or federal case reporting criteria?How will trigger events get updated as reporting criteria change?	



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Entity	Activity/process	Questions to consider	Notes/comments
Health care setting	Send report	<ol style="list-style-type: none">1. How does the EHR connect to public health?2. Does the transport mechanism provide for security, encryption and authentication?3. Do data pass through an HIE (see below)?4. Does the health care setting expect an acknowledgement that the case report was received?	
Health Information Exchange (HIE)	Receive and process case report	<p>In some jurisdictions, case reports will be sent to public health via an HIE:</p> <ol style="list-style-type: none">1. Are the data transformed in any way by the HIE? If so, with what risks to data quality?2. Please see additional questions in “Health Information Exchange Planning Questions” below.	
Public health	Receive case report	<ol style="list-style-type: none">1. Will public health assess the case report for conformance to a specific format?2. What business rules are applied to assure the quality of incoming data?3. Does public health use an electronic message integration engine to apply business rules and conformance criteria?4. Does public health send acknowledgements back to the health care setting?5. Others?	



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Entity	Activity/process	Questions to consider	Notes/comments
Public health	Send data collection form	<ol style="list-style-type: none">1. What are the data collection forms public health might need in order to collect additional data on a given case?2. Are these forms in electronic format that can be provided to the health care setting?3. Will public health use the Structured Data Capture (SDC) approach to distribute electronic forms?4. Does the transport mechanism for an electronic form provide for security, encryption and authentication?	
Health care setting	Fill data collection form, return to Public Health	<ol style="list-style-type: none">1. Does the EHR have the ability to incorporate electronic forms from external sources?2. If not, how will the form be provided? Via web-based data entry system hosted by public health? Via fax? Via phone conversation with public health?3. How will the request for additional information be incorporated into the health care setting's workflow?4. Who specifically will complete the form, and will they have knowledge of the requested information?	
Public health	Receive completed data collection form	<ol style="list-style-type: none">1. How will public health integrate the additional data with the initial case report?	



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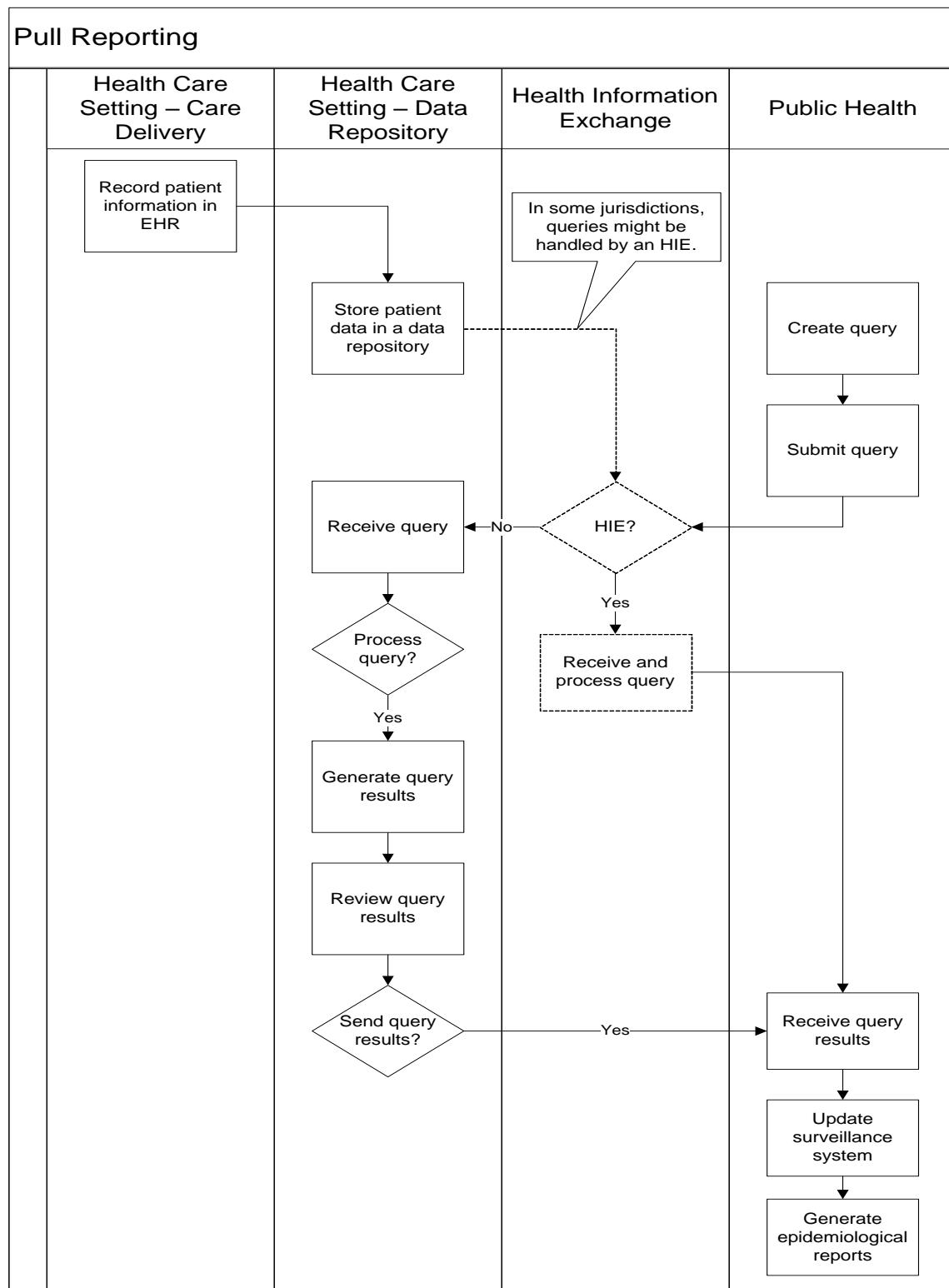
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Entity	Activity/process	Questions to consider	Notes/comments
Public health	Generate epidemiological reports	<ol style="list-style-type: none">1. Are duplicate records acceptable for your purposes?2. How will you assess your data's representativeness of the population of interest?3. Are there other data you can compare your results to for validation?4. Are there social determinants indicators that you want to combine with case report data in these reports?	(See also the <i>Optimizing Data Quality and Use</i> section for material on this topic)

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Diagram 2: Pull Reporting





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Table 2: Planning questions related to Diagram 2: Pull Reporting

Entity	Activity/process	Questions to consider	Notes/comments
Health care setting: care delivery	Record patient information in EHR	<ol style="list-style-type: none">1. Who specifically is recording the information?2. At what point in the clinical encounter is the information captured?3. Is the information of interest to public health used by clinicians to provide care or is it of a more administrative nature?	(See also the <i>Defining Data Elements</i> tool in the <i>Understanding Clinical Data and Workflows</i> section for the worksheet on this topic)
Health care setting: data repository	Store patient data in a data repository	<ol style="list-style-type: none">1. Is patient data transformed as it is stored in a clinical data repository?2. How do any such transformations facilitate querying?3. Does the EHR or data repository run algorithms to classify patients into cases or categories of public health interest?4. Are local codes used by the EHR transformed to standard vocabularies?	[placeholder: reference Vocabulary standards supplemental reading]



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Entity	Activity/process	Questions to consider	Notes/comments
Public health	Submit query	<ol style="list-style-type: none">1. What is the pathway between systems (e.g., straight exchange over agreed upon transport protocol or an HIE)?2. Will the query be distributed to multiple health care settings so that each can provide a response that reflects their patient populations?3. What transport mechanism is used to send the query to health care settings?	
Health Information Exchange (HIE)	Receive and process query	<p>In some jurisdictions, queries and query results will be sent via an HIE:</p> <ol style="list-style-type: none">1. If so, is the HIE passing through queries and results, or is the HIE itself the clinical data repository being queried?2. Are the data transformed in any way by the HIE? If so, with what risks to data quality?3. Please see additional questions in “Health Information Exchange Planning Questions” below.	
Health care setting: data repository	Receive query	<ol style="list-style-type: none">1. Is the health care setting and public health using shared or compatible querying tools?2. Are additional guidance and business rules needed for the EHR populate the clinical data repository with the information public health wants?3. What happens if the query is poorly formed?	



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Entity	Activity/process	Questions to consider	Notes/comments
Health care setting: data repository	Generate query results	<ol style="list-style-type: none">1. Is the query result based on emerging standards such as those supporting clinical quality measures (e.g. QRDA)?2. What if there are no records matching the query parameters?3. How is a “No records found” acknowledgement formatted and sent?4. Are there suppression rules that govern whether or not results are generated?	
Health care setting: data repository	Review query results; share query results?	<ol style="list-style-type: none">1. Are there business rules that govern whether or not the health care setting will send the results of a query?2. Would such a decision be automated or part of a manual review by health care setting staff?	
Health care setting: data repository	Send query results	<ol style="list-style-type: none">1. What transport mechanism will be used to send the query results?2. Does the transport mechanism provide for security, encryption, and authentication?3. Do data pass through an HIE?4. Please see additional questions in “Health Information Exchange Planning Questions” below.	



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Entity	Activity/process	Questions to consider	Notes/comments
Public health	Update surveillance system	<ol style="list-style-type: none">1. What process is used to store data?2. Are query results transformed as they are received, parsed, and written into the surveillance system database?3. What data get stored?4. Are identifiers for the health care settings that are submitting the data saved?5. Do the original query results get archived?	
Public health	Generate epidemiological reports	<ol style="list-style-type: none">1. Are duplicate records acceptable for your purposes?2. How will you assess your data's representativeness of the population of interest?3. Are there other data you can compare your results to in order to validate the results?4. Are there social determinants indicators that you want to combine with case report data in these reports?	