

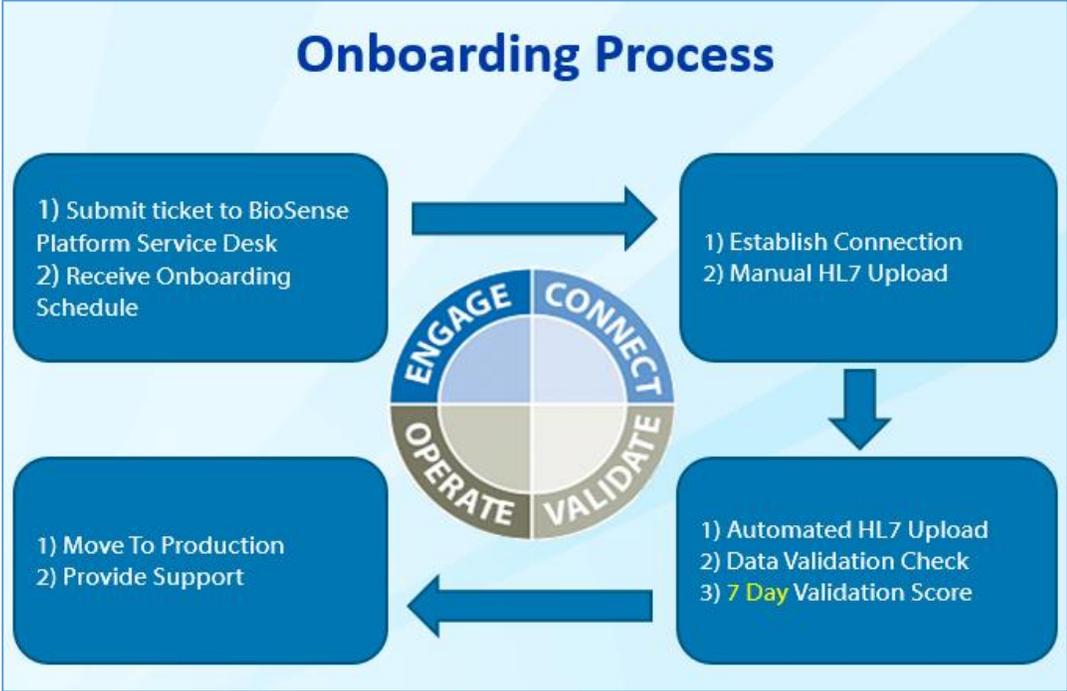
3 ONBOARDING METHODOLOGY

3.1 Overview

Onboarding is the process of working with a facility, health department, vendor for electronic health records (EHR), or health information exchange (HIE) to transmit syndromic surveillance data from internal medical record systems to the NSSP BioSense Platform, assess adherence to the Public Health Information Network (PHIN) by using the [PHIN Syndromic Surveillance Message Guide](#), and begin a live data feed to the BioSense Platform.

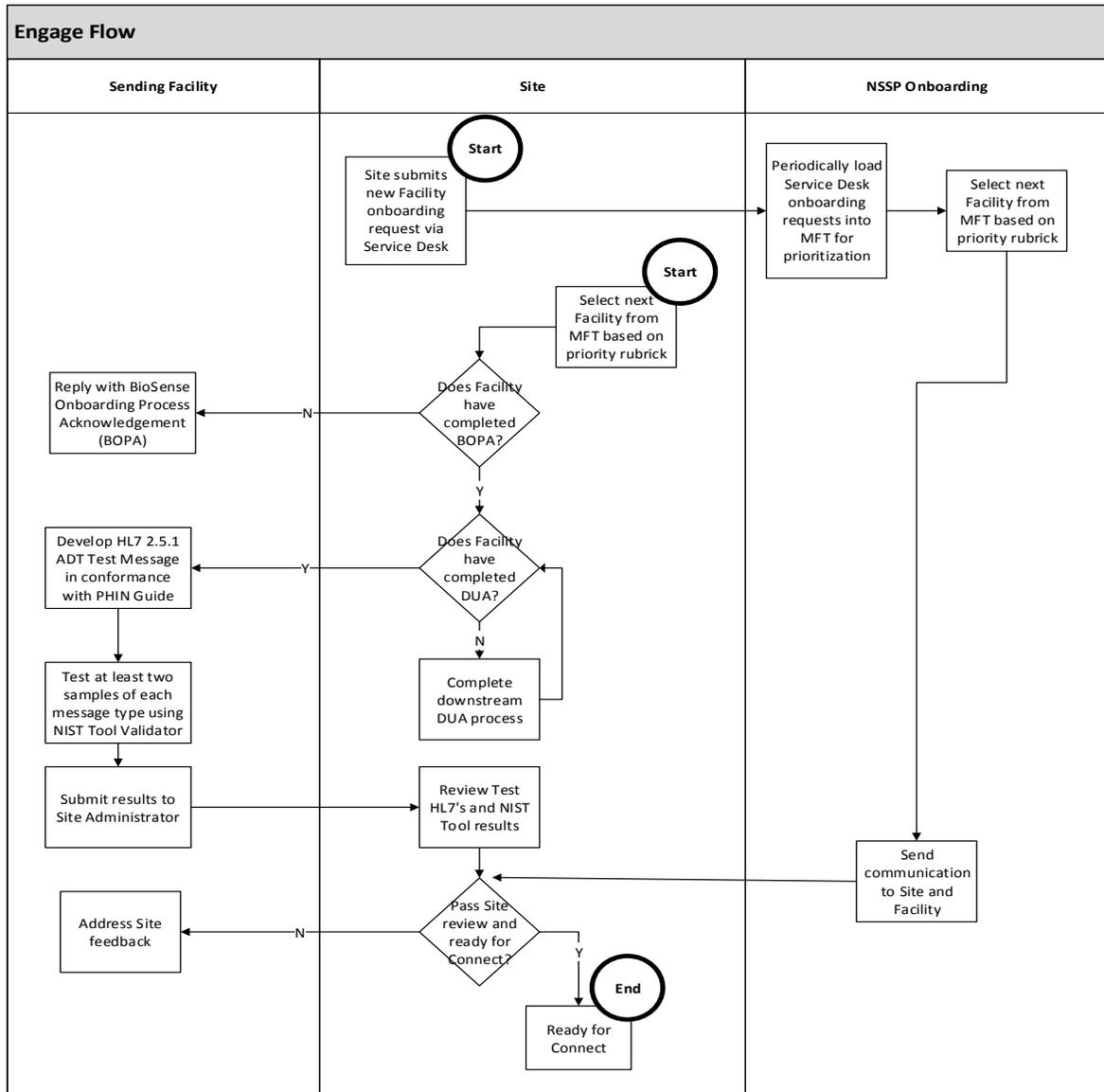
NSSP uses a four-phase approach for onboarding facilities to the BioSense Platform:

- Phase 1 : **Engage**
- Phase 2 : **Connect**
- Phase 3 : **Validate**
- Phase 4 : **Operate**



3.2 Engage Phase

The Engage Phase begins when a site administrator creates a BioSense Platform Service Desk ticket requesting onboarding for a facility. The Engage Phase focuses primarily on registering, prioritizing, and scheduling a facility onboarding.



3.2.1 Roles and Responsibilities

Within the Engage Phase, the following roles and responsibilities have been defined:

Engage Phase: Roles and Responsibilities	
Activity	Responsibility
Manage site onboarding priority list	Site administrator Site onboarding coordinator
Manage and submit updated site Master Facility Table Excel template to BioSense Platform Service Desk	Site administrator Site onboarding coordinator
Submit HL7 test messages to NIST validation tool, and submit successful test results to facility administrator and site administrator	Facility administrator Facility technical engineer EHR data manager
Review NIST HL7 validation results	Facility administrator Site administrator Site onboarding coordinator
Engage site and facility for onboarding	Site administrator Site onboarding coordinator Onboarding team (as requested)

3.2.2 Key Decisions and Inputs

Within the Engage Phase, the following key decisions and inputs will be required:

Engage Phase: Roles and Responsibilities	
Activity	Responsibility
Create target dates for milestones	Site administrator Site onboarding coordinator
Submit Master Facility Table template with planned facility onboarding dates to BioSense Platform Service Desk	Site administrator Site onboarding coordinator
Review grant-based deadlines (if site is a grantee)	Site administrator Site onboarding coordinator

3.2.3 Tools and Technologies

Within the Engage Phase, the following tools and technologies are employed:

1. BioSense Platform Onboarding Website
<http://www.syndromicsurveillance.org/onboarding>
2. CDC *PHIN Messaging Guide for Syndromic Surveillance*
<http://www.cdc.gov/phin/resources/PHINguides.html>

3.2.4 Training

The following training materials are recommended for the Engage Phase:

1. phpMyAdmin – International Society for Disease Surveillance (ISDS) webinar on use of phpMyAdmin for the BioSense front-end Web application
<https://vimeo.com/96210035>
2. NIST Data Validation Tools
<http://hl7v2-ss-r2-testing.nist.gov/ss-r2/>
3. CDC *PHIN Messaging Guide for Syndromic Surveillance*
<http://www.cdc.gov/phin/resources/PHINguides.html>

3.3.1 Roles and Responsibilities

Within the Connect Phase, the following roles and responsibilities have been defined:

Connect Phase: Roles and Responsibilities	
Activity	Responsibility
Create SSH key pair	Site or facility technical engineer EHR data manager
Create site administrator user account	Onboarding team
Configure processing	Onboarding team
Upload valid production HL7 message	Site or facility technical engineer EHR data manager

3.3.2 Key Decisions and Inputs

Within the Connect Phase, the following key decisions and inputs will be required:

1. Transport mechanisms: Choose between SFTP and PHINMS for data exchange.
2. Filename conventions: Develop filename convention.

Note: The NSSP team does not provide technical support for SFTP or PHINMS. Customers should request support for these tools from their source vendor.

3.3.3 Tools and Technologies

Within the Connect Phase, the following tools and technologies are employed:

1. Putty Key Generator: PuTTYgen is the tool used to create a key-pair used for authentication with BioSense Platform servers. Reference **Appendix A** for instructions on using Putty.
2. SSH File Transfer Protocol: SFTP is the protocol used to transfer files to the BioSense Platform servers. The following tools are suggested for use:
 - a. WinSCP – <http://winscp.net>
 - b. FileZilla – <https://filezilla-project.org/>
3. Filename Convention:
 - a. Files uploaded to the BioSense Platform cannot be processed unless the file format is valid:
 - b. {State}_{Provider}_{Date}_{Hour}_{FileNumber}.{Suffix}
Example: GA_MetroClinic_20160101_15_001.hl7

Note: No white-space characters are permitted in the filename.

File-Naming Convention	
Name Segment	Description
2-Letter State	2-letter state abbreviation where the feed originates
Provider Acronym	An abbreviated provider name or acronym
8-Digit Date	A date in form YYYYMMDD
2-Digit Hour	A 2-digit military hour (00-23)

File-Naming Convention	
Name Segment	Description
File Number	Unique number/counter used when more than one file is sent per hour to ensure each file has a unique filename
File-Type Suffix	hl7 – used for HL7 formatted content

4. Filename Restrictions:
 - a. No white-space characters are permitted in the filename (e.g., space, tab, vertical tab, new-lines, form-feeds).
 - b. HL7 messages must be batched into one file and transmitted hourly.
 - c. Empty files are prohibited and should not be transmitted.
5. Submit Public Key and a Valid Test Message to the BioSense Platform:
 - a. Log into <http://support.syndromicsurveillance.org>.
 - b. Locate your current onboarding registration ticket by clicking on “My Requests.”
 - c. Attach the following items to the current ticket:
 - i. Your Public Key
 - ii. A Valid Test Message with the correct filename convention

3.3.4 Training

The following training materials are recommended for the Connect Phase:

phpMyAdmin – ISDS webinar on use of phpMyAdmin for BioSense front-end Web application <https://vimeo.com/96210035>

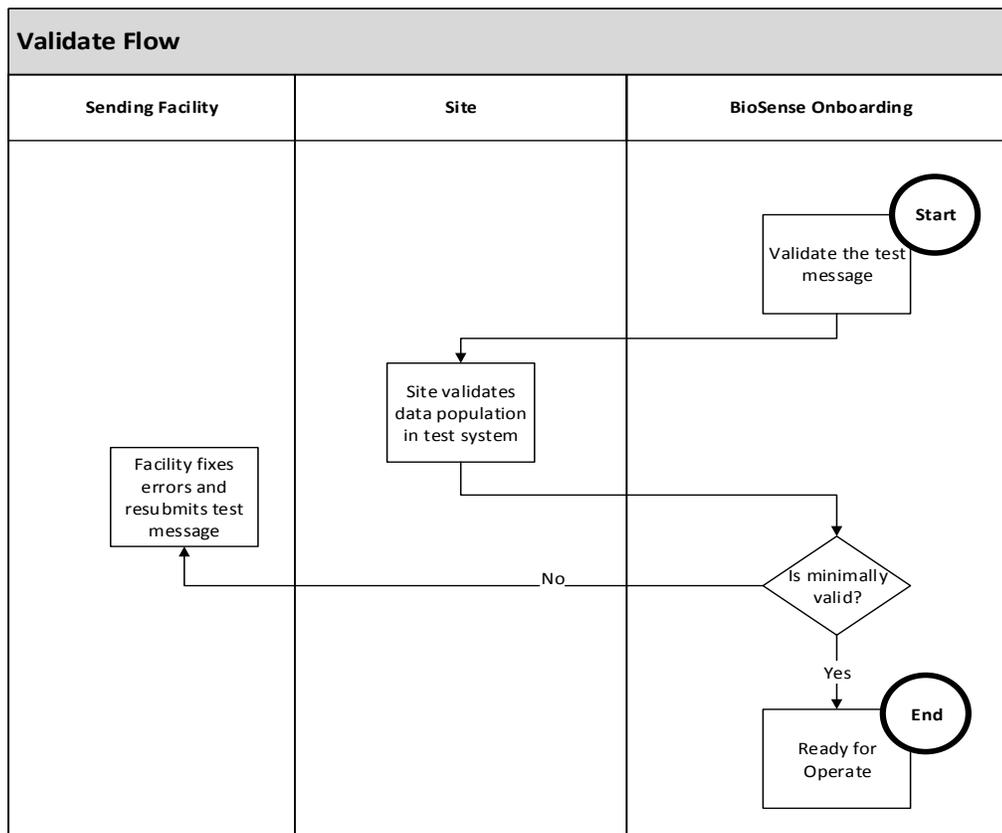
3.4 Validate Phase

The Validate Phase measures whether the received messages comply with the [PHIN Messaging Guide for Syndromic Surveillance](#) and BioSense Platform requirements.

Objectives:

1. Ensure timeliness of message delivery meets meaningful use requirements and is consistently maintained.
2. Identify and resolve data issues to achieve required message quality.
3. Strive to improve data quality in all areas beyond minimum requirements.

Note: Data must be timely for syndromic surveillance. Therefore, data must be submitted at least within 24 hours of the date and time of the patient’s initial encounter. Subsequent updates to a patient’s record must also be submitted within 24 hours of the information (transaction) being added to the patient record. Real-time data transmission, or frequent batch data transmission, is preferred. If batch transmission mode is used, batches must be transmitted at least once every 6 hours.



3.4.1 Roles and Responsibilities

Within the Validate Phase, the following roles and responsibilities have been defined:

Validate Phase: Roles and Responsibilities	
Activity	Responsibility
Request data validation through BioSense Platform Service Desk	Site administrator Site onboarding coordinator
Create data validation results for site administrator	Site administrator Site onboarding coordinator
Assess facility data compliance results to meet NSSP-required minimums	Onboarding team
Assess facility data compliance results to meet site-specified minimums (see Note)	Site administrator Site onboarding coordinator
Fix HL7 issues and resubmit data as required	Facility technical engineer EHR data manager
Ensure data does not have personally identifiable information (PII) and data elements are mapped correctly	Site administrator Site onboarding coordinator Facility technical engineer EHR data manager

Note: A site may have additional data compliance or quality standards yet choose to accept the *minimum* data compliance guidelines administered by the NSSP. A site's level of involvement during the Validate Phase will vary by whatever onboarding support model was specified during site planning.

3.4.2 Key Decisions and Inputs

All messages must pass data validation. Data validation ensures required fields contain data that fulfill the requirements set forth by the PHIN Messaging Guide for Syndromic Surveillance. PHIN guidelines require 100% compliance for all required data elements for all patient classes.

3.4.3 Tools and Technologies

Within the Validate Phase, the following tools and technologies may be employed:

1. CDC SQL Validation Scripts
<http://www.syndromicsurveillance.org/onboarding>
2. CDC PHIN Vocabulary Access and Distribution System (VADS)
<https://phinvads.cdc.gov/vads/SearchVocab.action>
3. HL7 Messaging Standard Version 2.5.1 (HL7 Manual)
<http://www.HL7.org>
4. National Institute for Standards and Technology (NIST) HL7 V2.5.1 Syndromic Surveillance Validation Tool – Meaningful Use 2014 Edition
<http://hl7v2-ss-r2-testing.nist.gov/ss-r2/>

3.4.4 Training

The following training materials are recommended for this phase:

ISDS Webinar on the use of HL7 for the BioSense front-end Web application:

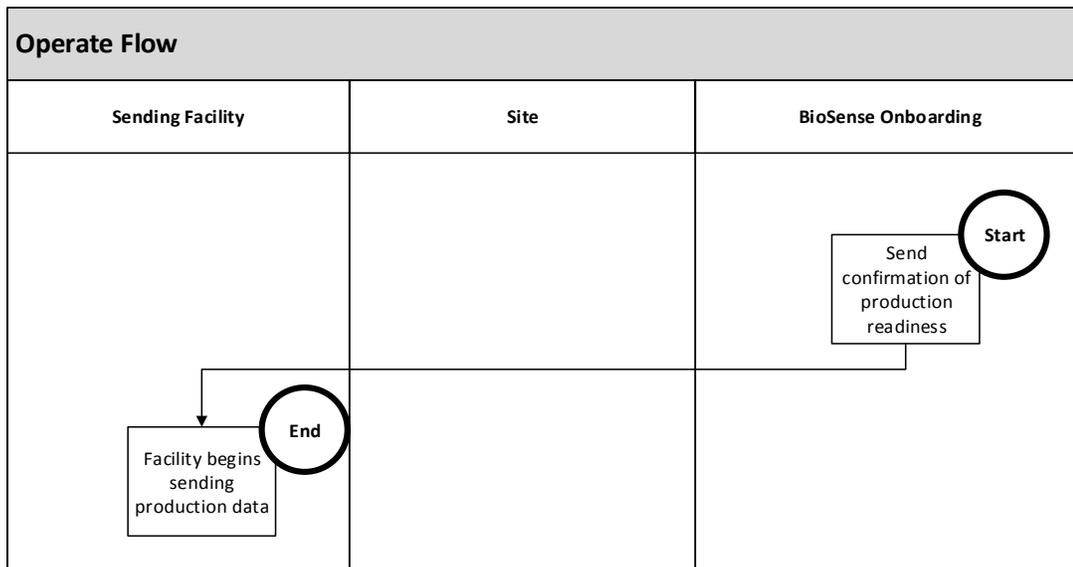
<https://vimeo.com/58577283>

3.5 Operate Phase

The Operate Phase begins once a feed or facility has been approved to send live data into production.

Objectives:

1. Perform maintenance to support data feed.
2. Assist site with data quality improvements, if needed.
3. Monitor data feeds for timeliness and consistency.



3.5.1 Roles and Responsibilities

Within the Operate Phase, the following roles and responsibilities have been defined based on the type of onboarding.

Operate Phase: Roles and Responsibilities	
Activity	Responsibility
Monitor facility connections	Facility administrator Facility technical engineer EHR Data Manager
Provide support for connection issues	Facility technical engineer EHR Data Manager
Review data timeliness and quality	Site administrator Site onboarding coordinator
Respond to data quality investigations and data quality improvement requests	Facility administrator Facility leadership Site or Facility technical engineer EHR Data Manager

3.5.2 Key Decisions and Inputs

Within the Operate Phase, the following key decisions and inputs are required:

1. Sites will perform a process review to identify strengths and weaknesses of the completed onboarding process;
2. Sites will improve data quality by setting annual quality targets; and
3. Sites administrators may establish clear service level agreements with facilities.

3.5.3 Tools and Technologies

Within the Operate Phase, the following tools and technologies are employed:

1. phpMyAdmin – Each participating site has a secure locker in which its line-level data may be viewed and analyzed.
2. BioSense 2.0 – Epidemiologists will use this tool to perform syndromic surveillance, analysis, and basic visualization of those analyses using a Web-based front-end tool.

Note: Sites administrators will use the admin console in BioSense 2.0 to manage data-sharing privileges.

Note: The BioSense 2.0 front-end Web application is scheduled to be replaced by the Early Notification of Community-based Epidemics (ESSENCE) in 2016.

3. RStudio – Epidemiologist should use this tool to perform visual data analytics.

3.5.4 Training

The following training materials are recommended for the Operate Phase:

RStudio <https://vimeo.com/82123421>