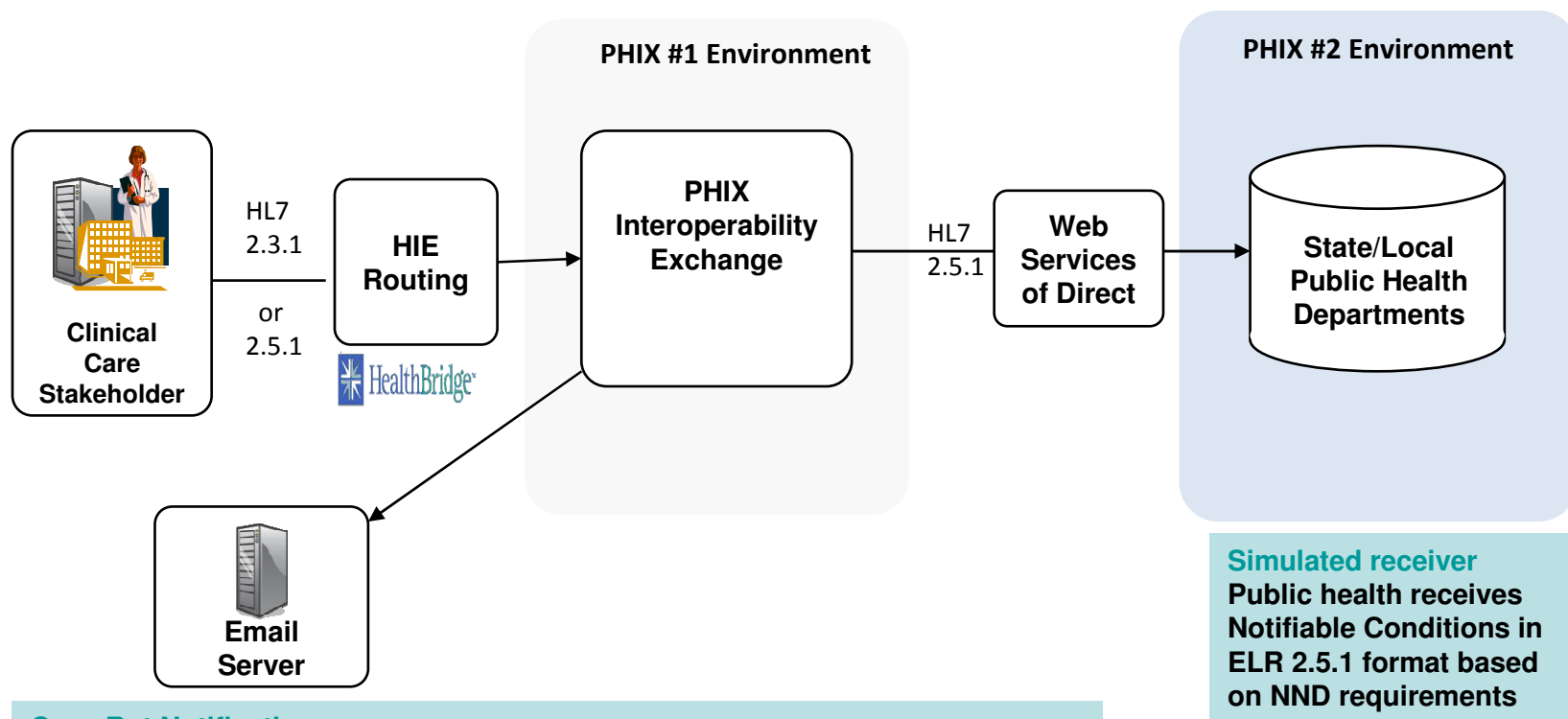**Engaging Public Health Informatics in the Development of a Public Health Information eXchange**

Current Use Cases Supported by the PHIX

Scenario 1 – Report Notifiable Laboratory Results

Notifiable Results Reporting
- **Define 3 Disease Conditions for demonstration purposes**
  1) Hepatitis C; 2) Influenza (H1N1); 3) Salmonellosis
- **Transform v2.3.1 messages to ELR 2.5.1 format and create SPM and SFT segments**
- **NND triggers based on LOINC Codes and various result data**

PHIX #1 Environment

PHIX #2 Environment

Clinical Care Stakeholder

HL7 2.3.1

or

2.5.1

HealthBridge

HIE Routing

PHIX Interoperability Exchange

HL7 2.5.1

Web Services of Direct

State/Local Public Health Departments

Email Server

Simulated receiver
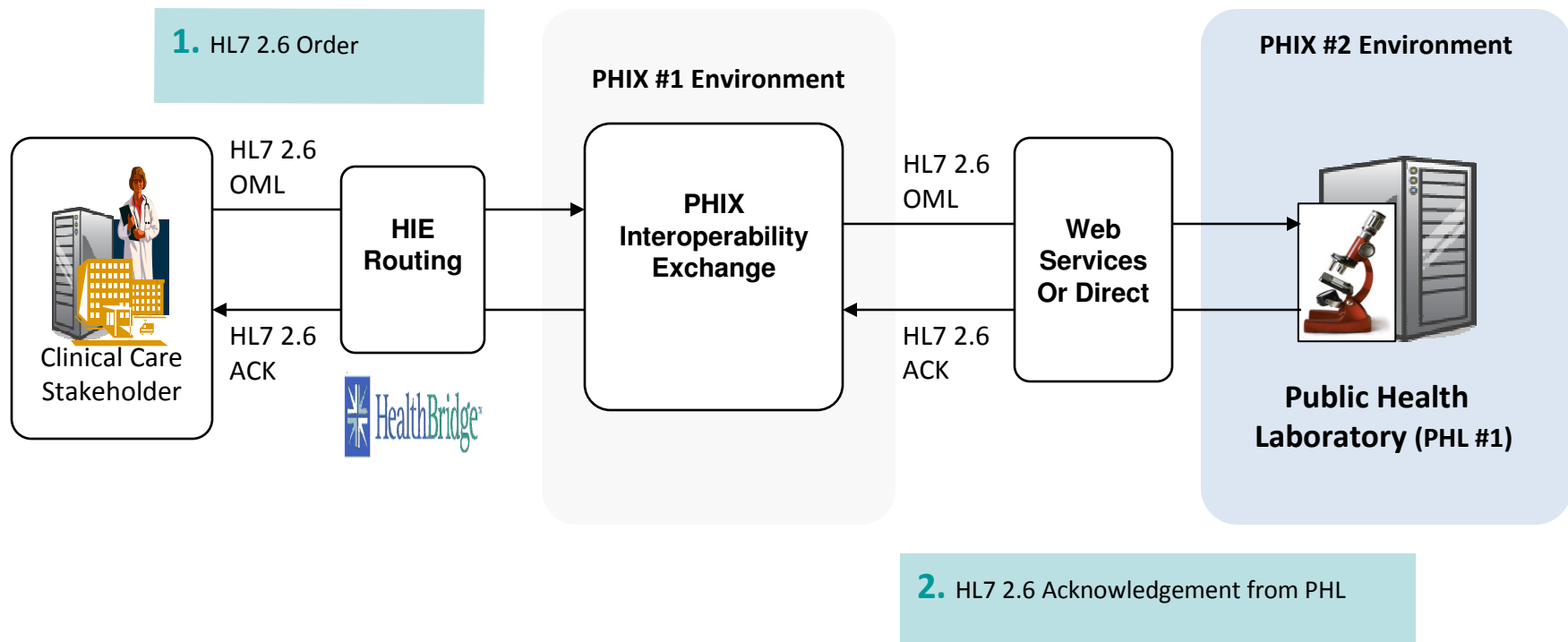**Public health receives Notifiable Conditions in ELR 2.5.1 format based on NND requirements**

Case Rpt Notification
Exchange provides an email notification indicating that a Notifiable Disease Condition has been detected to serve as a prompt to initiate Case Reporting procedures.

Scenario 2 (parts 1 & 2) – EHR/EMR to PHL Test Order & Results
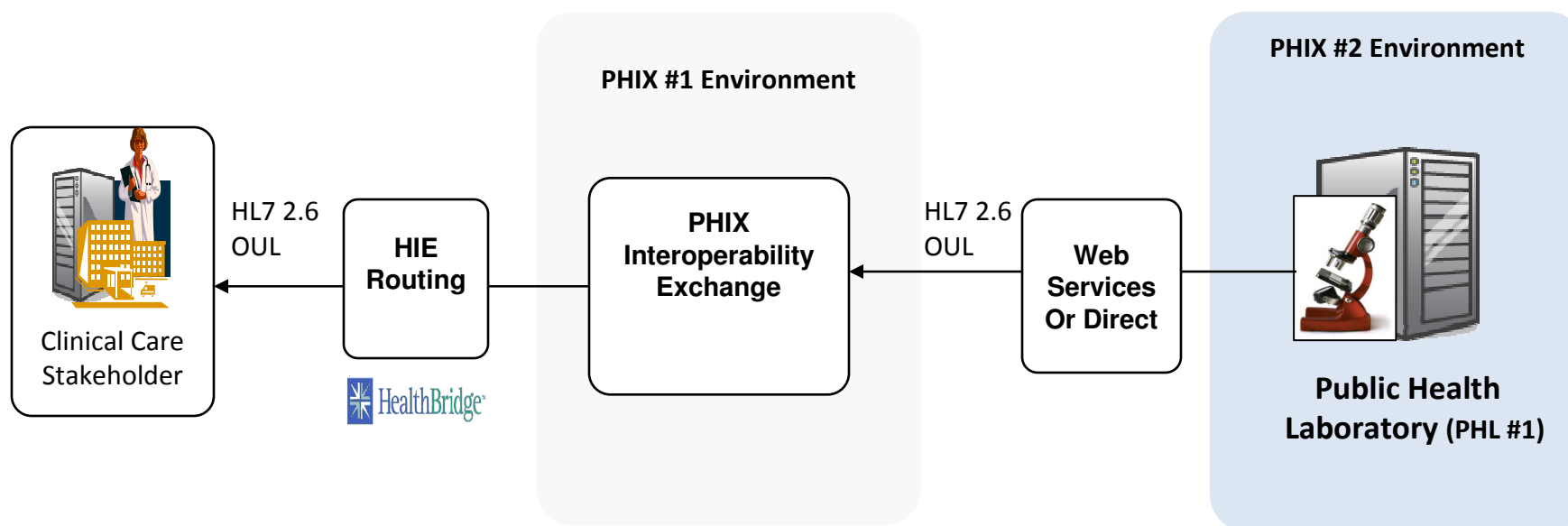
PHL Test Order/ACK
- Send HL7 2.6 OML message to PHL for identification/confirmation of Salmonella organism
- Patient demographics are provided in PID, PV1 and PV2 segments
- MSH Control Id field used to identify ACK message
- PHL provides order Acknowledgement (ACK) to clinical care stakeholder
- Used for validation of initial identification or confirmation of disease condition

1. HL7 2.6 Order

PHIX #2 Environment

PHIX #1 Environment

HL7 2.6 OML

HL7 2.6 ACK

HIE Routing

PHIX Interoperability Exchange

HL7 2.6 OML

HL7 2.6 ACK

Web Services Or Direct

Clinical Care Stakeholder

HealthBridge

Public Health Laboratory (PHL #1)

2. HL7 2.6 Acknowledgement from PHL

Scenario 2 (part 3) – EHR/EMR to PHL Test Order & Result

PHL Test Result
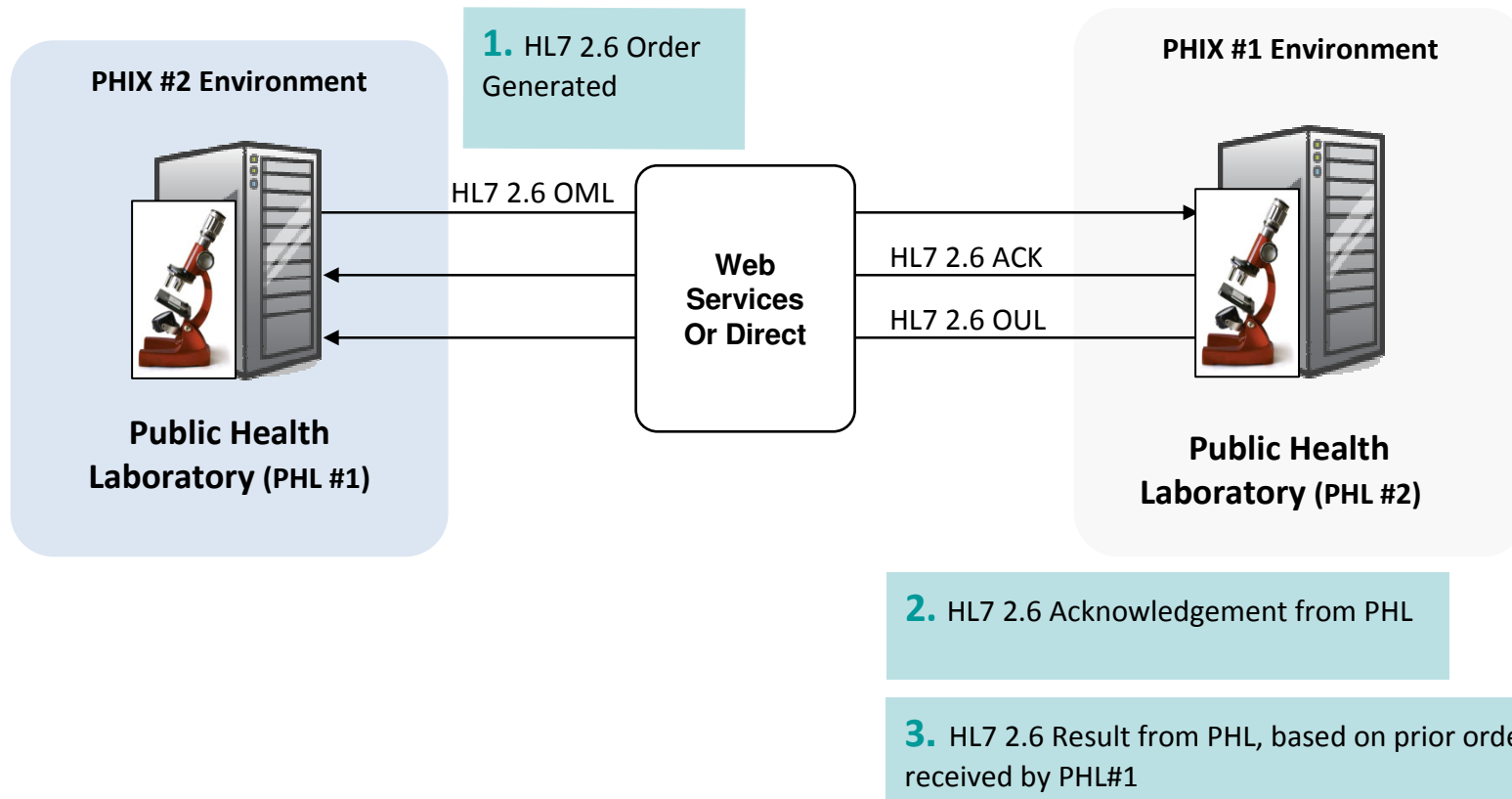• **HL7 2.6 result. Hub facilitates routing results to HIE/Clinical Care Stakeholder**

3. **HL7 2.6 Result**
Results based on orders from prior slides.
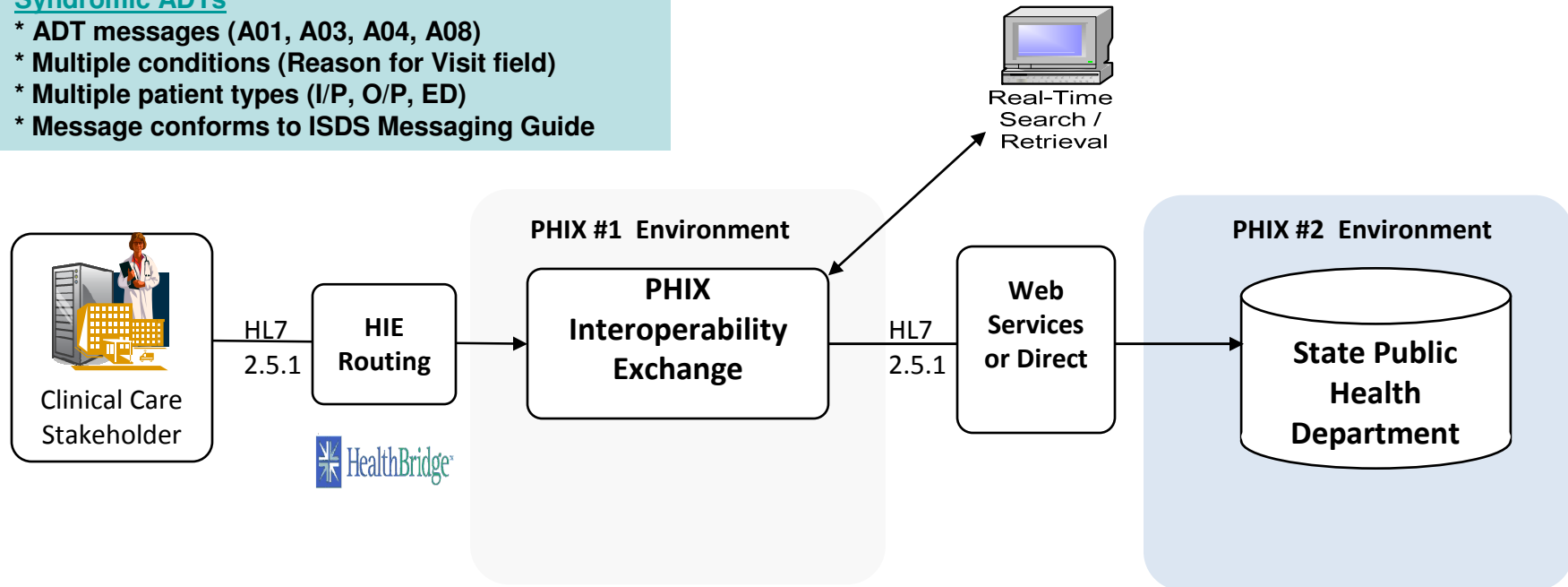
Scenario 3 – PHL to PHL Test Order & Result

- Send HL7 2.6 OML message to PHL for identification/confirmation of Salmonella organism
- Patient demographics are provided in PID, PV1 and PV2 segments
- MSH Control ID used to identify ACK message
- PHL provides order Acknowledgement (ACK) to ordering PHL
- Used in the event of workload capacity overflow and testing availability

PHIX #2 Environment

1. HL7 2.6 Order Generated

PHIX #1 Environment

HL7 2.6 OML

Web Services Or Direct

HL7 2.6 ACK

HL7 2.6 OUL

Public Health Laboratory (PHL #1)

Public Health Laboratory (PHL #2)

2. HL7 2.6 Acknowledgement from PHL

3. HL7 2.6 Result from PHL, based on prior orders received by PHL#1

Scenario 4 – Send Unsolicited ADT Messages (Syndromic Surveillance)

Syndromic ADTs
* ADT messages (A01, A03, A04, A08)
* Multiple conditions (Reason for Visit field)
* Multiple patient types (I/P, O/P, ED)
* Message conforms to ISDS Messaging Guide

Real-Time Search / Retrieval

PHIX #1 Environment

Clinical Care Stakeholder

HL7 2.5.1 → HIE Routing

HealthBridge

PHIX Interoperability Exchange

HL7 2.5.1 → Web Services or Direct

PHIX #2 Environment

State Public Health Department

- **Exchange sends all results to State Public health as anonymized data.**
- **Ideally HIE would provide filtering if required.**
- **Patient re-identification functionality (public health emergency) supported**
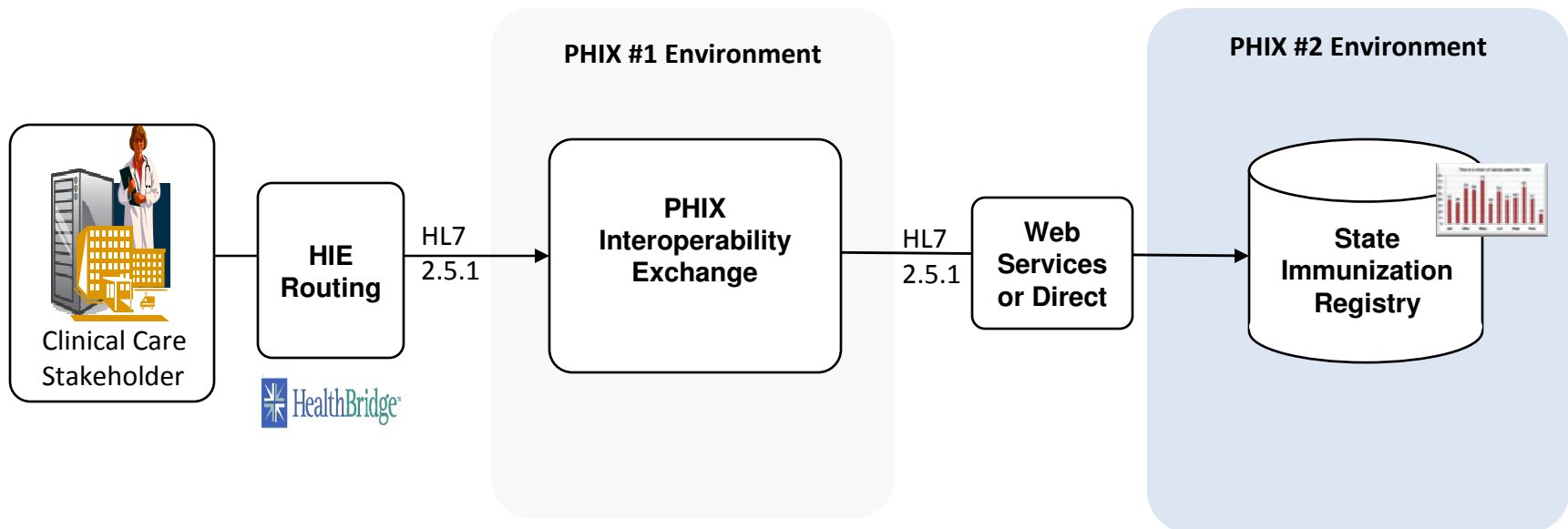
* **Simulated receiver**
- **2nd PHIX instance provides receiver support.**
- **PH departments define natural language processing rules to put data in correct syndromic category**

Scenario 5 – Send Unsolicited Vaccination Messages

Unsolicited Vaccinations
* HL7 VXU 2.5.1 messages
* 3 – 4 different vaccines across the messages with code validation

PHIX #1 Environment

PHIX #2 Environment

Clinical Care Stakeholder

HIE Routing

HL7 2.5.1

PHIX Interoperability Exchange

HL7 2.5.1

Web Services or Direct

State Immunization Registry

HealthBridge

- **Messages provided by Clinical Care Stakeholder and retrieved by the exchange.**
- **Inpatient, Outpatient and ED patient data from hospital**
- **Unsolicited messages only. No queries.**

- **Provides Secure web services or Direct out of PHIX**
- **Supports emerging immunization specification HL7 2.5.1**