Improving Health Outcomes

Moving Patients Along the HIV Care Continuum and Beyond

JUNE 2017

INTERVENTION OVERVIEW & REPLICATION TIPS

Louisiana Public Health Information Exchange (LaPHIE)

Louisiana State University, Health Science Center and Louisiana Department of Health Hospitals, Office of Public Health

This intervention document is part of a training manual, **"Improving Health Outcomes: Moving Patients Along the HIV Care Continuum and Beyond"** and is published by the Special Projects of National Significance (SPNS), under the HIV/AIDS Bureau (HAB) of the Health and Human Service's (HHS), Health Resources and Services Administration (HRSA).

The full manual highlights 10 interventions along the HIV Care Continuum. Individual intervention chapters as well as the full manual are available.

- Diagnosing HIV
- ▶ Linkage to Care
- Retention in Care
- Prescription of ART & Medication Access
- Beyond the Care Continuum: Addressing HCV Comorbidity and Coinfection

U.S. Department of Health and Human Services
Health Resources and Services Administration
HIV/AIDS Bureau

Linkage to Care

Linkage to care, as it relates to the Care Continuum, refers to linking individuals who are HIV-positive to HIV primary care. This may include newly diagnosed individuals, persons previously diagnosed who have never been linked to care, or persons who have fallen out of care and are being re-linked. The standard of care for linkage is that persons who are diagnosed with HIV be linked to HIV medical care as soon as possible and no later than 30 days following diagnosis.[34]

Underserved populations, including many racial, ethnic, and sexual minorities, face numerous structural, financial, and cultural barriers that impede their linkage to and engagement in care.[35] Of those newly diagnosed, 74.5% of persons age 13 and older are linked to care within one month of diagnosis though just 56.5% are retained in HIV care.[36] Delaying HIV care and treatment can lead to poorer health outcomes and earlier death, instead of better health.[37] Delaying initiation of HIV care and treatment also creates the opportunity for HIV transmission to occur.[38]

Addressing several key areas has been found to improve linkage and re-engagement in care, including

- removal of structural barriers;
- increased social support services;
- use of peers, client navigation, and care coordination;
- a culturally responsive approach;
- appointment scheduling and follow up;
- timely and active referrals post-diagnosis;
- integrated one-stop-shop care delivery (e.g., co-located substance use, mental health, and other service offerings);

[34] CDC. Monitoring selected national HIV prevention and care objectives by using HIV surveillance data—United States and 6 dependent areas, 2014. *HIV Surveillance Supplemental Report* 2016;21(No.4). **www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-supplemental-report-vol-21-4.pdf** Accessed September 16, 2016.

[35] CDC. Monitoring selected national HIV prevention and care objectives by using HIV surveillance data—United States and 6 dependent areas, 2014. *HIV Surveillance Supplemental Report* 2016;21(No.4), Table 5a. **www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-supplemental-report-vol-21-4.pdf** Accessed September 16, 2016.

[36] CDC. Monitoring selected national HIV prevention and care objectives by using HIV surveillance data—United States and 6 dependent areas, 2014. *HIV Surveillance Supplemental Report* 2016;21(No.4). **www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-supplemental-report-vol-21-4.pdf** Accessed September 16, 2016.

[37] Horstmann E, Brown J, Islam F, et al. Retaining HIV-infected Clients in Care: Where are We? Where Do We Go From Here? *Clin Infect Dis.* 2010;50:752–61.

[38] AIDSInfo. *Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents.* Clinical Guidelines Portal. Available at: **https://aidsinfo.nih.gov/guidelines**

- active approaches to reach and re-engage individuals who are out of care—for instance, using the Internet and mobile devices (e.g., for social networking, texting); and
- assistance with entitlements/benefits paperwork to secure additional financial, insurance, identification, and social support services.

A warm transition is also critical. This is the act of "applying social work tenets to public health activities for those with chronic health conditions, including HIV-infection."[39] Often the HIV tester is linking a client to another provider and possibly even to another facility. What this linkage looks like, how active it is, how comfortable the client is made to feel in establishing yet another new relationship shortly after receipt of their diagnosis can either help increase the likelihood of linkage to care or add to challenges that complicate it. Without a caring, supportive, and warm transition approach, pre-existing barriers to care and other stressors will continue to take priority.[40]

SPNS has tested and identified interventions that have proven effective in linking, re-engaging, and retaining clients in care, even for some of the hardest-to-reach and most vulnerable populations.

[39] Jordan AO, Cohen LR, Harriman G, et al. Transitional Care Coordination in New York City Jails: Facilitating Linkages to Care for People with HIV Returning Home from Rikers Island. JAIDS (Suppl). 2013;(2); S212–219.

[40] Jordan AO, Cohen LR, Harriman G, et al. Transitional Care Coordination in New York City Jails: Facilitating Linkages to Care for People with HIV Returning Home from Rikers Island. JAIDS (Suppl). 2013;(2); S212–219.

Improving Health Outcomes

Moving Patients Along the HIV Care Continuum and Beyond

Diagnosing HIV

INTERVENTION OVERVIEW & REPLICATION TIPS

Social Networks Testing
Wisconsin Department of Health Services

Linkage to Care

INTERVENTION OVERVIEW & REPLICATION TIPS

Assess, Test, Link: Achieve Success (ATLAS) Program
Care Alliance Health Center (OH)

Enhancing Linkages to Care for Women Leaving Jail
University of Illinois at Chicago

Video Conferencing Intervention
Louisiana Department of Health and Hospitals

Active Referral Intervention
Virginia Department of Health

▶ Louisiana Public Health Information Exchange (LaPHIE)
Louisiana State University, Health Science Center and Louisiana Department of Health Hospitals, Office of Public Health

Retention in Care

INTERVENTION OVERVIEW & REPLICATION TIPS

My Health Profile
New York-Presbyterian Hospital

Prescription of ART & Medication Access

INTERVENTION OVERVIEW & REPLICATION TIPS

Care Coordination Intervention
Virginia Department of Health

Beyond the Care Continuum: Addressing HCV Comorbidity and Coinfection

INTERVENTION OVERVIEW & REPLICATION TIPS

Hepatitis Treatment Expansion Initiative
University of California, San Francisco, San Francisco General Hospital HIV Clinic

Hepatitis Treatment Expansion Initiative
Washington University School of Medicine (MO)

Louisiana Public Health Information Exchange (LaPHIE)

Louisiana State University, Health Science Center and Louisiana Department of Health Hospitals, Office of Public Health

The table below provides a general overview of the Louisiana Public Health Information Exchange (LaPHIE) intervention so readers can assess the necessary steps required for replication. This intervention facilitates bidirectional information exchange between hospital system records and surveillance data to identify and link out-of-care HIV-positive clients back to care and treatment.

Intervention at-a-Glance	
Step 1	**Electronic Medical Record (EMR) Registers Client Arrival to Medical Facility** When any client registers at a participating medical center, their identifying information is added to the medical center's electronic registration system.
Step 2	**Compare Client Against Out-of-Care Dataset** An electronic notification is sent and compares registered client against out-of-care dataset to see if there's an exact match.
Step 3	**Out-of-Care Message is Sent** If there's a match, a standard, disease-specific electronic message is sent to the facility's electronic EMR system.
Step 4	**Alert Displays on Clinician Screen** The EMR system receives the message and it displays a standard, disease-specific alert to an authorized clinician when they open the client's EMR.
Step 5	**Linkage-to-Care Action is Prompted** When the clinician clicks on the alert, they see a list of suggested actions that can be checked off on the screen.
Step 6	**Linkage-to-Care Action Recorded** After a client meets with a clinician, the clinician checks off the linkage-to-care actions taken, and a message is sent to update the out-of-care dataset.

Step 7	**Out-of-Care Dataset Updated** The out-of-care dataset is updated nightly to determine which individuals should be included in the dataset.

Source: Louisiana State University Health Care Service Division. *Louisiana Public Health Information Exchange (LaPHIE): An Electronic Network to Improve Access for Hard to Reach Populations of Persons Living with HIV.* Final Report. February 28, 2013.

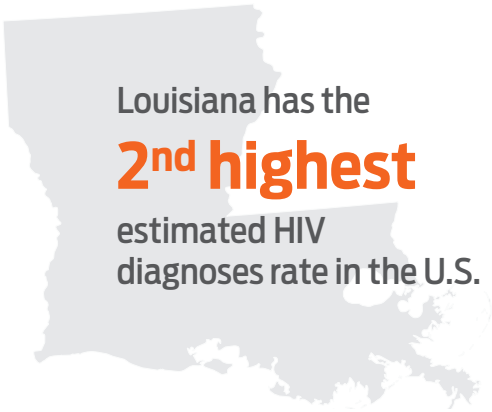
Resource Assessment Checklist

Organizations should walk through a Resource Assessment (or Readiness) Checklist to assess their ability to conduct this work. If organizations do not have these components in place, they are encouraged to develop their capacity so that they can successfully conduct the Louisiana Public Health Information Exchange (LaPHIE) intervention. Questions to consider include:

- ☐ Does your organization have access to timely, accurate surveillance data or to a collaborating partner who does?
- ☐ Is there interest in establishing a system where surveillance data and real-time EMR data are communicating?
- ☐ Does your organization have access to—or can you tap into—diverse and affected stakeholder groups to explain project plans and incorporate their input?
- ☐ Does your organization have an EMR system in place? Is this across one or more facilities?
- ☐ Are there IT staff members who can establish a secure, bi-directional electronic information system to share data across two sources? If not, are you able to partner with or hire an organization that has this expertise?
- ☐ Does your organization have IT user support to field and manage questions as technical features are rolled out? If not, can your organization acquire this expertise?

Setting the Stage: Grantee Intervention Background

Under a combined program with a single administrative director, the Louisiana Department of Health and Hospitals, Office of Public Health (OPH), STD/HIV Program oversees surveillance, prevention, and care programs for both HIV and STDs and conducts data entry and analysis related to these programs. Meanwhile, the Louisiana State University (LSU) Health Care Services Division had an extensive EMR system across its eight hospitals.



Source: Centers for Disease Control and Prevention. HIV Surveillance Report, 2014; vol. 26. **http://www.cdc.gov/hiv/library/reports/surveillance/**. 2015.

After a joint OPH-LSU analysis revealed that approximately 1,100 individuals received at least one non-HIV medical service within the LSU hospital system yet their HIV diagnosis was not readily available to the clinician in the medical record at the time, OPH-LSU developed a hypothesis. They proposed that a bi-directional exchange of information between healthcare providers and public health surveillance data would effectively identify and offer the opportunity to link these otherwise hard-to-reach persons into HIV care and treatment.[90]

LSU, in partnership with OPH, was awarded SPNS funding as part of the **Electronic Networks of Care initiative** to establish and test this bi-directional data system known as the Louisiana Public Health Information Exchange program, or LaPHIE.

LaPHIE was phased into LSU hospital ERs and then associated venues throughout the hospital system and proved itself as an innovative electronic health information intervention to address unmet need among HIV-positive individuals in the state.

Description of Intervention Model

CHALLENGE ACCEPTED

THE CHALLENGE: how to turn clinical encounters with clients who are not in HIV care, and change this missed opportunity into a time for active engagement and subsequent linkage to care.

Intervention Model: Electronic Network Notification System

Given the sometimes transient and sporadic nature of healthcare receipt among hard-to-reach people living with HIV (PLWH), LaPHIE is able to maximize meaningful use of existing electronic health records to screen for, identify, and conduct outreach for out-of-care HIV-positive individuals.

[90] Louisiana State University Health Care Service Division. *Louisiana Public Health Information Exchange (LaPHIE): An Electronic Network to Improve Access for Hard to Reach Populations of Persons Living with HIV.* Final Report. February 28, 2013.

Privacy and confidentiality are paramount when it comes to health information and medical records. This is particularly true for diagnoses such as HIV, which is still a very stigmatized disease. Sharing protected healthcare and public health information while complex and challenging, is doable.

Before embarking on this work, LSU and OPH convened a legal compliance and ethics working-group consisting of public health officials, doctors and nurses, attorneys familiar with both federal and state health laws, HIV-positive persons, HIV advocates, and a medical ethicist. During the course of a year, the workgroup compiled legal questions, reviewed relevant legislation, and engaged in discussions with national confidentiality and biomedical ethic experts to help answer questions. An independent market research firm also conducted focus group interviews with potential clients as well as clinicians and public health personnel about the project. After all of this, the following conclusions were made:[91]

- LaPHIE is both legal and ethical. In Louisiana, no laws prohibit information sharing for the purposes of improving individual care. In fact, Louisiana legislation facilitates communication between public health authorities and healthcare providers in order to improve treatment.
- Focus group participants, from clients to providers to public health personnel, expressed overall acceptance to—and after rollout, appreciation for—the LaPHIE system.[92]

LaPHIE partners took steps to ensure only the minimally necessary information is transmitted; that transmissions are secure; and that this information only be shared with authorized providers. Protections include secure servers behind firewalls and information traveling through secure, private channels employing state-of-the-art encryption.

Because LaPHIE alerts are provided in real-time through an automated system, it is imperative that the data be up-to-date. OPH monitors laboratory data on an ongoing basis with the majority of laboratory data being reported electronically daily. Each week, surveillance supervisors review lab quality assurance reports and immediately follow up on any issues.[93]

HITECH & MEANINGFUL USE

The Health Information Technology for Economic and Clinical Health (HITECH) Act promotes the adoption and meaningful use of health information technology. ***Meaningful use*** is using certified electronic health record technology to

- improve quality, safety, efficiency, and reduce health disparities;
- engage and empower patients;
- improve care delivery, transparency, and efficiency;
- maintain privacy and security of patient health information; and ultimately,
- lead to improved public and patient health outcomes.

Source: HealthIT.gov. Meaningful Use Definition & Objectives. n.d. Available at: **www.healthit.gov/providers-professionals/meaningful-use-definition-objectives.**

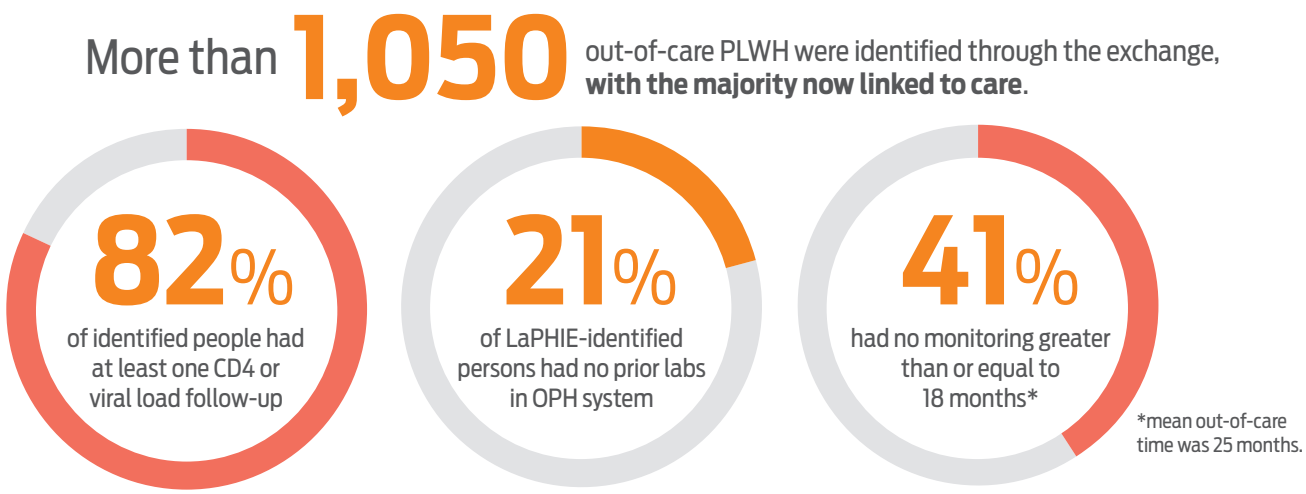
[91] Louisiana State University Health Care Service Division. *Louisiana Public Health Information Exchange (LaPHIE): An Electronic Network to Improve Access for Hard to Reach Populations of Persons Living with HIV*. Non-technical Guide. February 28, 2013.

[92] LSU and OPH. Louisiana Public Health Information Exchange (LaPHIE). n.d. Available at: **https://effectiveinterventions.cdc.gov/docs/default-source/data-to-care-d2c/LaPHIE_Program_Description_12_10_13.pdf?sfvrsn=0**.

[93] LSU and OPH. Louisiana Public Health Information Exchange (LaPHIE). n.d. Available at: **https://effectiveinterventions.cdc.gov/docs/default-source/data-to-care-d2c/LaPHIE_Program_Description_12_10_13.pdf?sfvrsn=0.**

LaPHIE BY THE NUMBERS

Just in the *first two years*, LaPHIE saw incredible HIV Care Continuum improvement. This included:



Source: Louisiana State University Health Care Service Division. *Louisiana Public Health Information Exchange (LaPHIE): An Electronic Network to Improve Access for Hard to Reach Populations of Persons Living with HIV.* Non-technical Guide. February 28, 2013.

The LaPHIE dataset contains thousands of records of persons diagnosed with HIV who appear to be out-of-care. *Out-of-care* is defined as no record of CD4 or viral load in the last 9 months. The OPH database interfaces with the LSU hospital client registration and EMR systems. When individuals enter the LSU hospital system (ER, clinic, or otherwise), the system compares those clients against the out-of-care list.

When an exact match is made (with last name, first name, birth date, and social security number), a LaPHIE message (issued as a standard HL7 Client Problem message) is sent in real-time to the EMR, and a provider sees an alert on the opening screen of the client's record. Alerts are only visible to nurses and physicians who are in a position to take action.

When providers see the alert, they have the option to "take action now" or "take action later." When "take action now" is selected, they are directed to a screen that includes clinical support recommendations and a structured documentation tool to record the clinical actions taken.

After an alert, clinicians or designated staff talk to the client and answer any questions they have. There are several options available for the provider to select in terms of which actions are taken. These include [94]

1. discuss OPH alert and underscore the importance of HIV treatment;
2. re-order a confirmatory test;
3. assess stage of illness;
4. schedule or refer client for a follow-up appointment;

[94] LSU and OPH. Louisiana Public Health Information Exchange (LaPHIE). n.d. Available at: **https://effectiveinterventions.cdc.gov/docs/default-source/data-to-care-d2c/LaPHIE_Program_Description_12_10_13.pdf?sfvrsn=0.**

5. counsel pregnant client (if pregnant);
6. document any client report of any HIV treatment receipt at another facility (and the name of that facility); and
7. confirm client is not interested in treatment at this time.

A "clinical actions taken" message is sent back to OPH upon client's discharge. If a provider selects "take action later," the LaPHIE alert will continue to post with each return to the Client Summary Screen, reminding the provider that action is still needed. These alert messages can be thought of as a type of electronic outreach targeting HIV-positive persons.[95]

[95] Louisiana State University Health Care Service Division. *Louisiana Public Health Information Exchange (LaPHIE): An Electronic Network to Improve Access for Hard to Reach Populations of Persons Living with HIV*. Final Report. February 28, 2013.

Staffing Requirements & Considerations for Replication

Staffing Capacity

Based on the OPH work, here are the types of staff necessary to replicate this intervention.

Project coordinator: This individual oversees the project design and continued maintenance of the LaPHIE intervention. This person also helps coordinate and oversee any focus or working group activities.

Surveillance manager: The surveillance manager oversees surveillance, prevention, and care programs for both HIV and STDs and conducts data entry and analysis related to these programs. This individual provides input on the intervention's dataset and alert notification copy.

IT manager: During project design, this person helps conceptualize the flow of information across data sources, identifies possible issues, and provides recommendations. Additionally, they oversee the build and development of the bidirectional data system, identify any failure points in the flow of information, help develop a dataset, and provide TA and troubleshooting.

For OPH, additional staff, such as clinicians, program directors, experts in compliance, the chief medical officer, and the HIV administrative director offered in-kind support during the planning, launch, and rollout of LaPHIE.

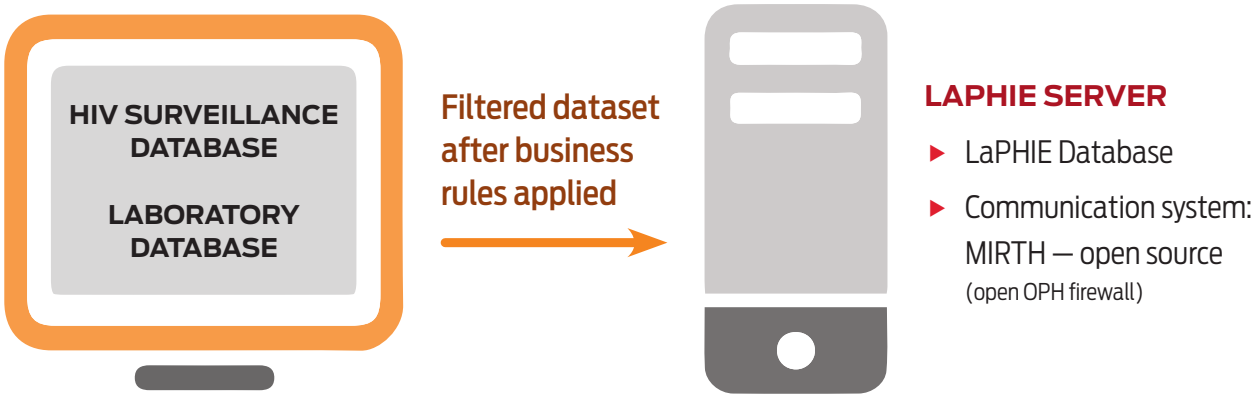
Staff Characteristics

Important staff characteristics include

- experience with and understanding of surveillance data and quality assurance strategies;
- knowledge of the existing electronic medical record system and integration of health information technology systems to facilitate bi-directional communication; and
- interest in working with and improving health outcomes for people living with HIV.

Sources: Louisiana State University Health Care Service Division. *Louisiana Public Health Information Exchange (LaPHIE): An Electronic Network to Improve Access for Hard to Reach Populations of Persons Living with HIV*. Non-technical Guide. February 28, 2013.

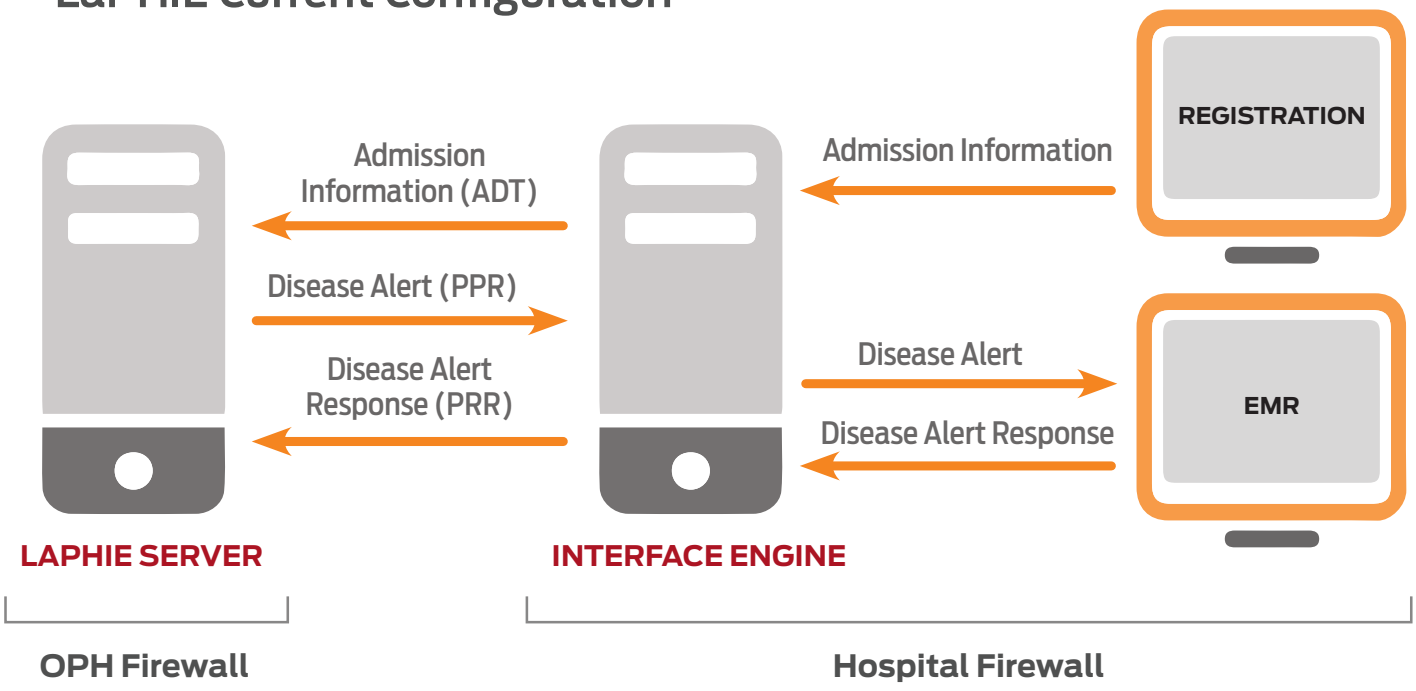
LaPHIE Surveillance Data Inputs



TARGET POPULATIONS:

- Persons considered "not in care" (no record of CD4/VL in 9 months)
- Persons who have not received test results and may be unaware of HIV status
- HIV-exposed infants in need of follow-up

LaPHIE Current Configuration



Source: Reprinted with permission. Louisiana Office of Public Health, STD/HIV Program and Louisiana State University.

Replication Tips for Intervention Procedures and Client Engagement

This section provides tips for readers interested in replicating the intervention and, where applicable, includes grantee examples for further context.

Organizations interested in replicating LaPHIE need to determine whether the intervention is in alignment with their institutional goals, mission, vision, and priorities as well as what type of service encounters and institution's intervention alerts are appropriate. Because LaPHIE intervention would be a new system, how it is rolled out, to which facilities, and in what order, as well as how trainings will take place for users, all need to be considered.[96]

Since LaPHIE involves multiple stakeholders, it is also important to consider whether any competing, large-scale or technological projects are taking place, in transition, or planned for in the near future. This includes any plans for an upgrade or switch to a new EMR software system or any major changes in leadership that could affect implementation and rollout.[97]

Since non-infectious disease clinicians will be receiving alerts, the project should consider how comfortable these individuals are with discussing HIV and HIV care.[98] Organizations may want to consider offering HIV education in addition to LaPHIE technical use trainings.

Depending on the scale of the project, organizations will also need to consider how much time and effort a LaPHIE-style intervention will require from IT staff. Assessment of current IT activities as well as data quality assurance activities is advisable during project planning.

The following steps should also be considered when creating a similar intervention:

- **Identify any failure points in the flow of information** (e.g., from diagnosis of HIV infection to reporting, to follow-up across public health and medical providers).
- **Have your EMR system adopt a "no wrong door" approach** so untreated PLWH with encounters anywhere at the participating hospital can be referred to an initial point of clinical care.
- **Develop a dataset.** This includes knowing your organization's strengths and weaknesses when it comes to your dataset. Do you have comprehensive lab surveillance that provides enough information to determine if a person is out of care?
- **Determine message flow and alert notifications.** This includes message content. Clinicians and public health professionals should provide input on intervention message alerts. Ideally, messages are simple and intuitive, including recommended actions for providers to take, and tracking those

[96] Louisiana Department of Health and Hospitals, Office of Public Health, STD/HIV Program. *Louisiana's Special Projects of National Significance: Systems Linkages and Access to Care for Populations at High Risk of HIV Infection Initiative.* Final Report. August 31, 2015.
[97] Louisiana Department of Health and Hospitals, Office of Public Health, STD/HIV Program. *Louisiana's Special Projects of National Significance: Systems Linkages and Access to Care for Populations at High Risk of HIV Infection Initiative.* Final Report. August 31, 2015.
[98] Louisiana Department of Health and Hospitals, Office of Public Health, STD/HIV Program. *Louisiana's Special Projects of National Significance: Systems Linkages and Access to Care for Populations at High Risk of HIV Infection Initiative.* Final Report. August 31, 2015.

respective actions. Clinicians should also be familiar with how to respond to alerts in EMRs and, ideally, there should not be too many other competing alerts for clinician attention.

- **Determine process for follow-up** should providers decline action.

Securing Buy-in

LSU and OPH went to great lengths to secure buy-in from stakeholders during the brainstorming, building, rollout, and testing phases of LaPHIE. This included:[99]

- **Legal compliance and ethics working group.** LSU and OPH created the working group to vet LaPHIE's feasibility and adherence to federal and state laws.
- **Community engagement via focus groups.** The LaPHIE project team conducted 16 focus groups with 149 clients and 23 "key informant" interviews with clients with HIV who were infrequent users of health care. As described by the project team, "The purpose of the qualitative research was to measure affected individuals' opinions on the purpose and structure of this exchange of protected health information."
- **In-person meetings.** Community and planning bodies were held prior to and during the implementation of LaPHIE.
- **Provider and healthcare system conversations.** LSU and OPH worked to engage with and communicate to providers about the LaPHIE project, how it would interface with current operations, answer questions, and address any possible concerns.
- **Trainings.** In advance of the LaPHIE launch, the LSU project coordinator conducted in-depth training with LaPHIE "Super-users" at each participating medical center. A Super-user is responsible for overseeing LaPHIE in their unit, and they are emailed every time there is an alert to ensure appropriate follow-up has occurred. The Super-users provide LaPHIE training to all clinicians in their unit. Additionally, all new LSU clinicians receive mandatory online training on how to use the LaPHIE system.

In addition to securing input from diverse personnel and partners for initial buy-in to create and maintain the system, these parties were also readily engaged to evaluate LaPHIE on an ongoing basis to ensure it continued to fulfill its mission.[100]

Organizations hoping to replicate LaPHIE would be well served to engage similar stakeholder groups and ensure adequate training so that the intervention operates, and users engage with the system, as intended.

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[99] Louisiana State University Health Care Service Division. *Louisiana Public Health Information Exchange (LaPHIE): An Electronic Network to Improve Access for Hard to Reach Populations of Persons Living with HIV.* Non-technical Guide. February 28, 2013.

[100] LSU and OPH. Louisiana Public Health Information Exchange (LaPHIE). n.d. Available at: **https://effectiveinterventions.cdc.gov/docs/default-source/data-to-care-d2c/LaPHIE_Program_Description_12_10_13.pdf?sfvrsn=0.**

Overcoming Implementation Challenges

Many of the challenges that the LaPHIE system encountered were also viewed as strengths. These included pulling together individuals across the healthcare system that had diverse philosophies, perspectives, and policies. These differing views ensured that the LaPHIE team considered all angles of the project, how it would work, interface with current systems, and how users and clients would feel about it.

The intervention has to balance individual rights and protection of the public's health. To address this, LSU and OPH examined the ethical nature of the system as well as the possible individual and community health outcomes such a system could bring.[101]

Because of the nature of the LaPHIE project and the bi-directional communication taking place across data systems, the process required numerous tests to ensure that EMR notifications were working correctly. To facilitate success, LaPHIE had a phased rollout, first at a hospital ER and then the broader hospital-affiliated clinics, and then on to another hospital ER and so on.[102]

Promoting Sustainability

The LSU hospital system has undergone significant change in recent years. In 2013, two hospitals were closed altogether, and the remaining hospitals—with the exception of one—were privatized and changed administrations.[103] The LaPHIE team has reached out to the hospitals about the intervention and to illustrate the value it brings to public health efforts. Three of the six hospitals decided to continue operating the LaPHIE system while the other three determined not to pursue it, citing a change in electronic health record software as their reason why.[104] With resources received from HRSA Special Projects of National Significance, OPH and LSU partnered with a private hospital not affiliated with the previous LSU system and successfully implemented LaPHIE in 2015.[105] Also, the Georgia Department of Public Health is implementing an intervention similar to LaPHIE.[106]

Conclusion

LaPHIE has proven an effective intervention in identifying and linking out-of-care HIV-positive individuals back to HIV care and treatment. Thousands of clients with HIV who were out of care have been effectively linked back into care and treatment thanks to LaPHIE.

As others consider replicating a similar model, it is important to understand the people who are falling through the "cracks" of their system, assessing how their dataset can be leveraged to best identify and intervene with these persons, assessing whether the validity of their surveillance data can be used for this style approach, and engaging stakeholders to secure necessary buy-in.

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[101] Louisiana State University Health Care Service Division. *Louisiana Public Health Information Exchange (LaPHIE): An Electronic Network to Improve Access for Hard to Reach Populations of Persons Living with HIV.* Final Report. February 28, 2013.

[102] Louisiana State University Health Care Service Division. *Louisiana Public Health Information Exchange (LaPHIE): An Electronic Network to Improve Access for Hard to Reach Populations of Persons Living with HIV*. Final Report. February 28, 2013.

[103] Gruber D and Wendell D. Louisiana Department of Health and Hospitals. Personal Interview. January 21, 2016.

[104] Gruber D and Wendell D. Louisiana Department of Health and Hospitals. Personal Interview. January 21, 2016.

[105] Gruber D and Wendell D. Louisiana Department of Health and Hospitals. Personal Interview. January 21, 2016.

[106] HRSA, HAB. Sustainability Results in Better Care for More People. *What's Going on @ SPNS*. October 2014. Available at: **http://hab.hrsa.gov/abouthab/files/cyberspnssustainability.pdf.**

LaPHIE taps into the promise of electronic health systems and illustrates just how effective the coupling of surveillance and EMR systems can be. For grantees who have a multi-campus hospital system, operate within regional health information organizations or exchanges, or otherwise communicate and share information across different facilities where clients may access care, then the LaPHIE "no wrong door" approach is a promising intervention worth further consideration.

Other Available Resources

- **Electronic Networks of Care Initiative**
- **LaPHIE Overview**
- **LaPHIE Presentation**
- **LaPHIE Collaborative Project Presentation**
- Legal and Ethical Aspects of Louisiana Public Health Information Exchange (LaPHIE) **"Using Technology to Improve Health Outcomes."** *What's Going on @ SPNS.*
- **"Sustainability Results in Better Care for More People."** *What's Going on @ SPNS.*
- **CDC Effective Interventions: Louisiana Public Health Information Exchange (LaPHIE)**
- Magnus M, Herwehe J, Murtaza-Rossini M, et al. **Linking and Retaining HIV Clients in Care: The Importance of Provider Attitudes and Behaviors.** *AIDS Client Care and STDS*. 2013; 27(5): 297-303.
- Herwehe J, Wilbright W, Abrams A, et al. **Implementation of an Innovative, Integrated Electronic Medical Record (EMR) and Public Health Information Exchange for HIV/AIDS.** *J Am Med Inform Assoc*. 2012;19(3): 448-452.