Connecting Kentucky:
Improving Care Coordination with KHIE

Kentucky Health Information Exchange

THE SOLUTION

The Kentucky Health Information Exchange (KHIE) facilitates clinical data exchange across the Commonwealth of Kentucky, neighboring states, and connected exchanges.

KHIE is an industry leader as KHIE supports various protocols and standards through the implementation of **enhanced services to empower healthcare providers** to improve the quality, safety, and efficiency of care. KHIE has the ability to **influence the way healthcare is planned, coordinated, and delivered**.

KHIE is a tool that supports clinical care coordination to **improve health outcomes** and **reduce healthcare costs** in Kentucky.

COMPREHENSIVE INFORMATION

KHIE facilitates the exchange of health data to support improved health outcomes and reduce healthcare costs.

A COMPARISON OF CLAIMS DATA AND EHR DATA AVAILABLE FOR 500 PATIENTS
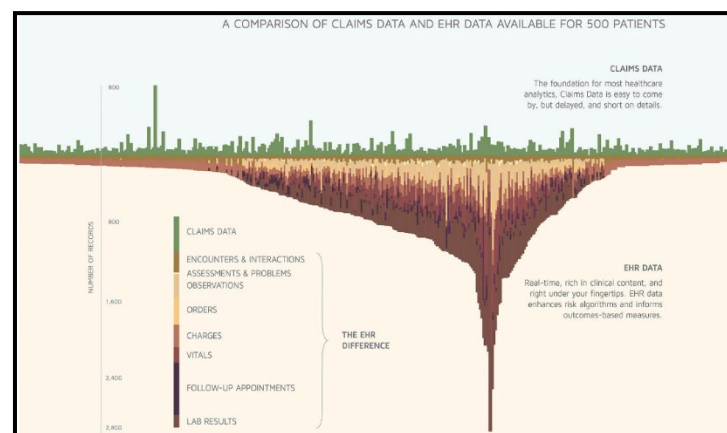
KEY FEATURES

KHIE is leading the way with **innovative features** including:

- Clinical Data Exchange (HL7, IHE, SFTP)
- Clinical Event Notifications
- Image Enablement
- Electronic Case Reporting
- Medicaid Claims Data
- Robust ePortal

Pioneering the HIE Marketplace

NETWORK

Since being founded in 2010, KHIE has grown to become one of the largest state-wide HIEs in the nation!

GROW

Since 2017, KHIE has seen remarkable growth:

- **135%** increase in live data feeds
- **63%** increase in participating organizations connected to KHIE
- **155%** increase in healthcare locations sending patient health data
- **100%** increase in individuals available in the Master Patient Index (MPI)

LEAD

KHIE is a national HIE leader, ranking among statewide HIEs:

- **1st** in number of overall connections (e.g., labs, hospitals, etc.)
- **1st** in unique patients searchable in the MPI
- **2nd** in number of participating organizations connected to KHIE
- **One of the only HIEs** with diagnostic quality, image exchange capability

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KHIE Configurability

8,000+
Expansive Data
KHIE is a secure network that meets national standards to ensure interoperability. KHIE receives data from **8,000+ individual feeds** while 98% of Kentucky hospitals contribute data to KHIE.

293M+
Clinical Documentation
KHIE's robust data storage enhances provider access to real-time patient information. Over **293 million clinical documents** are stored in KHIE. In June 2021 alone, over 893,000 Event Notifications were sent through KHIE.

3,324+
User Interfaces
KHIE continues to improve user capabilities through new services and enhancements offered to our Participants. Currently, more than **3,300 Healthcare Professionals** are connected to the KHIE ePartnerViewer.

4.5M+
COVID-19 Response
KHIE collaborates with other state entities, including KDPH, for the collective COVID-19 response. More than **4.5 million COVID-19 tests** were routed through KHIE to NEDSS since the start of the pandemic, in addition to 1 million immunizations sent to KYIR.

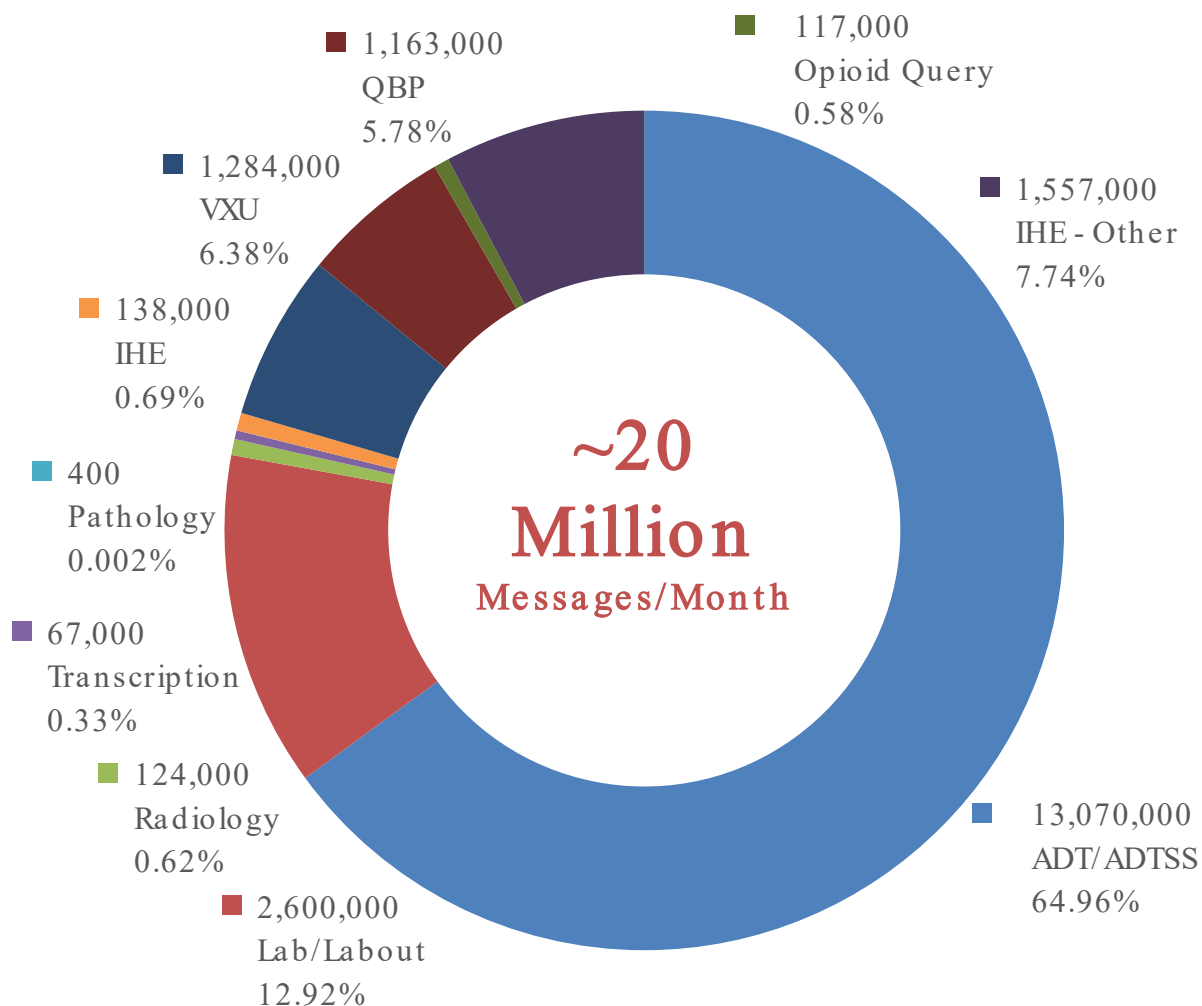KENTUCKY
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KHIE Messaging Capabilities

KHIE currently **processes ~20 million messages per month**.

- From Jan 21' to Mar 21', KHIE observed a 25% increase in messages processed per month on average versus the same monthly average in 2020.

- Assuming current volumes observed from January to March hold steady, KHIE is projected to receive ~240 million messages by the end of this year.

ADTs account for the **largest portion** of the data that **KHIE receives**.

The **amount of data** KHIE receives is increasing dramatically **due to a rapid expansion in Participant Onboarding**.

- 1,163,000 QBP 5.78%
- 117,000 Opioid Query 0.58%
- 1,557,000 IHE - Other 7.74%
- 1,284,000 VXU 6.38%
- 138,000 IHE 0.69%
- 400 Pathology 0.002%
- 67,000 Transcription 0.33%
- 124,000 Radiology 0.62%
- 2,600,000 Lab/Labout 12.92%
- 13,070,000 ADT/ADTSS 64.96%

~20 Million Messages/Month

Data Available with KHIE

KHIE DATA SET	DATA CAPTURED
ADT / Patient Demographic	Name, Address, Phone, DOB – Required Clinician Information, Diagnosis, Facility Location, Next of Kin, Insurance Information - Optional
Lab Results	Any pathology results
Radiology Reports	Transcribed findings and recommendations
Other Transcribed Reports	Any other type of transcribed reports. Ex: Operative report, ED report, Cancellation Notice, H&P. ANY document that is transcribed that a hospital wants to send.
CCD / CCDA	Summary of Care: Included when info is available in-patient record • Patient name 854718 • Current problem list • Current medication list • Current medication allergy list • Encounter diagnosis • Immunizations • Demographic information (preferred language, sex, race, ethnicity, date of birth)
Medicaid Claims Data	Anything Medicaid or MCO has paid
Immunization	Anything in WebIZ

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KHIE Services

Medicaid Continuity of Care
Electronically generate patient-specific clinical summary documents that include appropriate Medicaid IDs with Medicaid Claims Data

Direct Secure Messaging
Securely enables patient health information directly to another known and trusted recipient

Summary Continuity of Care
Electronically generate patient-specific clinical summary documents to enhance communications during transitions of care

Image Exchange
Providers may view, share, and export clinical images to local Picture Archiving and Communication Systems (PACS)

Patient Alert Query
Retrieves the latest information about a patient and flags specific high impact conditions

Social Determinants of Health (SDoH)
Access recent social determinants of health data through a collaboration with kynect resources

Event Notifications
Inform healthcare providers when a patient is admitted to, transferred, or discharged from various settings

Electronic Case Reporting
Report infectious diseases to the Department for Public Health through the connection with the Association of Public Health Laboratories (APHL) Informatics Messaging Service (AIMS)

Platinum Connection
Support Cross-Enterprise Document Sharing (XDS.b) and Cross-Community Access (XCA) IHE framework standards to push/pull data between KHIE and the Participant's EMR/EHR

Direct Data Entry
Manually enter data, which is instantly stored in the HIE

ePartnerViewer
Access real-time historical and clinical data through a customizable health portal

Public Health Registries and Reporting
Electronically submit data and reports as KHIE is connected to state and national registries, including KYIR and NEDSS

ePartnerViewer

The ePartnerViewer, Kentucky's Provider ePortal, is a **customizable health record portal** that offers users a view of real-time and historical clinical data from more than 6500 healthcare facilities.

Clinical Information

Event Notifications

Medicaid Claims

Immunizations

Bookmarked Patients

Direct Secure Messaging

KASPER Reports

Platinum Connection

BENEFITS

- **Exchange** clinical documents within the workflow of the **Provider's EHR**.

- Supports sharing Summary of Care Records, MS Word, PDFS, .TXT, .RFT, .JPEG, .GIF files.

PROVIDER A

KY MEDICAID CLAIMS

CONNECTED PROVIDERS

PROVIDER A'S EHR

IMMUNIZATION REGISTRY
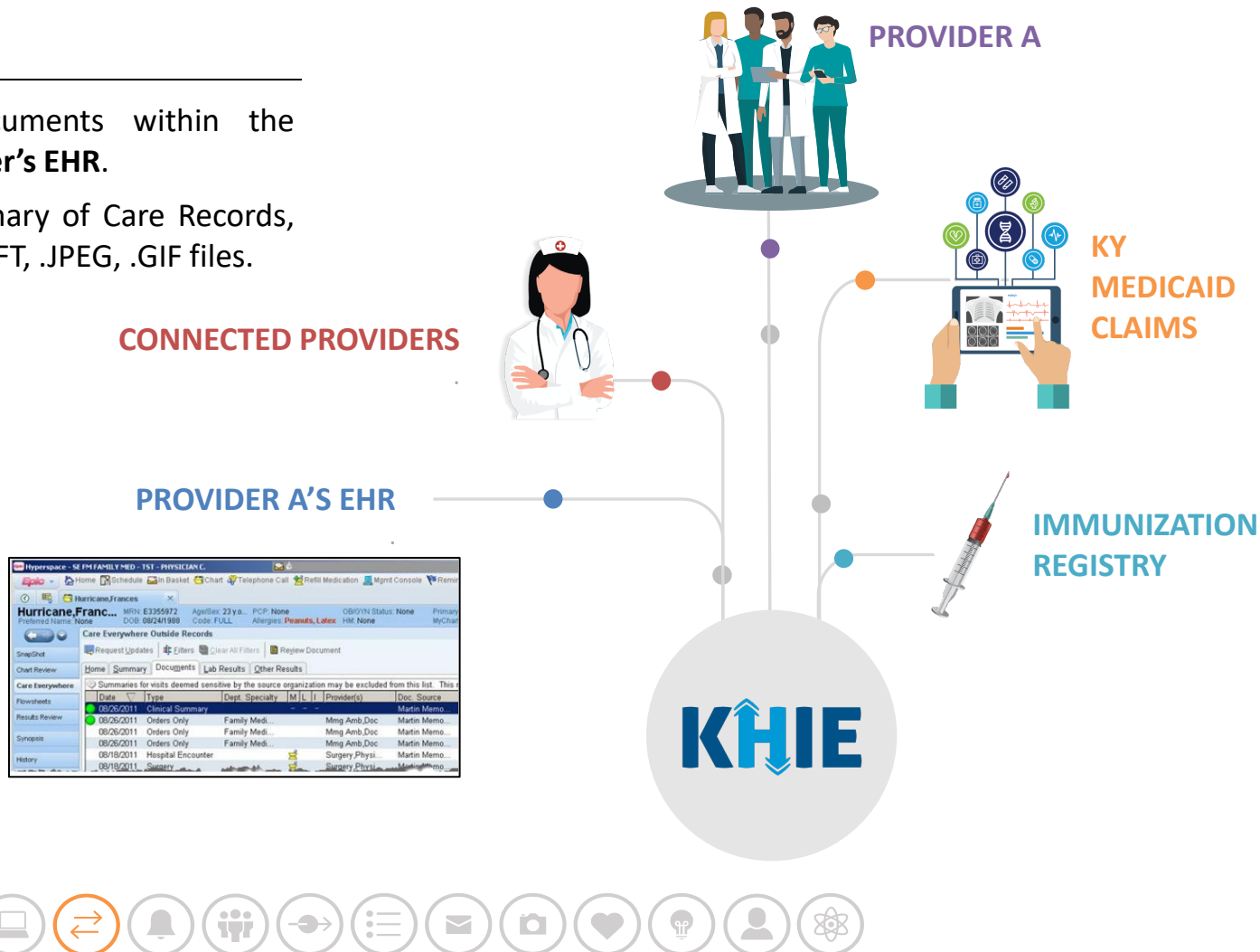
Event Notifications

Event Notifications:

- Hospital Admission/Discharge

- ED Admission/Discharge

- ED Re-Admit w/in 30 Days to a different facility

- Behavioral Health Admit/Discharge

- ED Overutilization

- Specialty Visit

- Toxicology Screen

- Lab Result Ready for Review

- COVID 19 Positive Test

Event Notifications

PATIENT IDENTIFIED VIA PATIENT PANEL OR LAB/ICD CODE

NOTICE SENT BACK TO HOSPITAL (IF APPLICABLE)

MESSAGE SENT THROUGH KHIE

START

PATIENT PRESENTS TO FACILITY

ADT SENT BACK TO HOSPITAL (IF APPLICABLE)
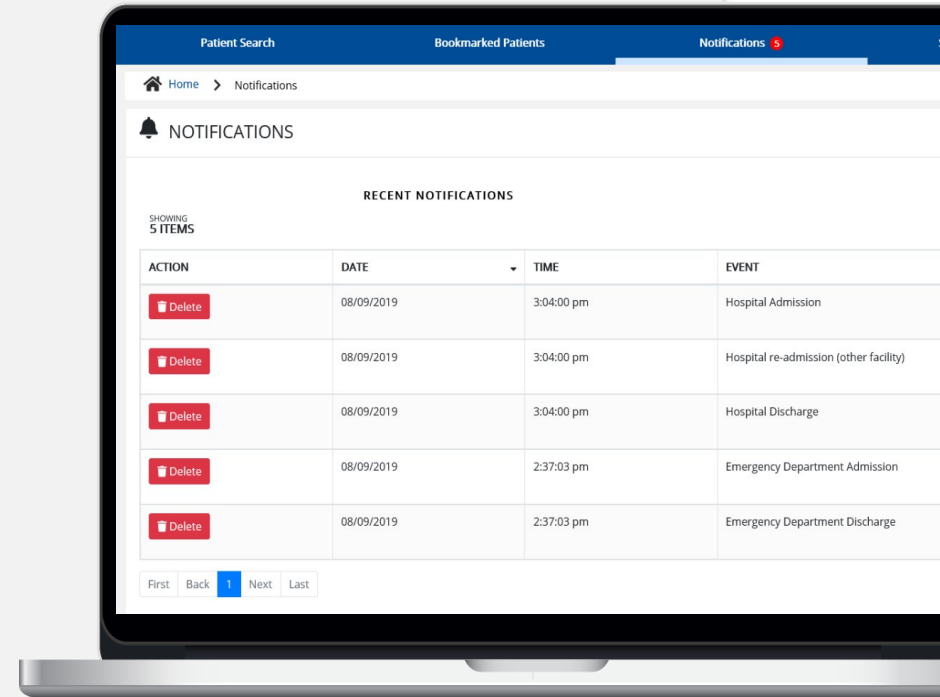
NOTICE SENT TO FACILITY ELECTING TO RECEIVE NOTIFICATIONS

ePartnerViewer

EHR

DIRECT SECURE MESSAGING

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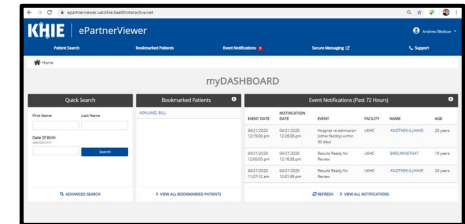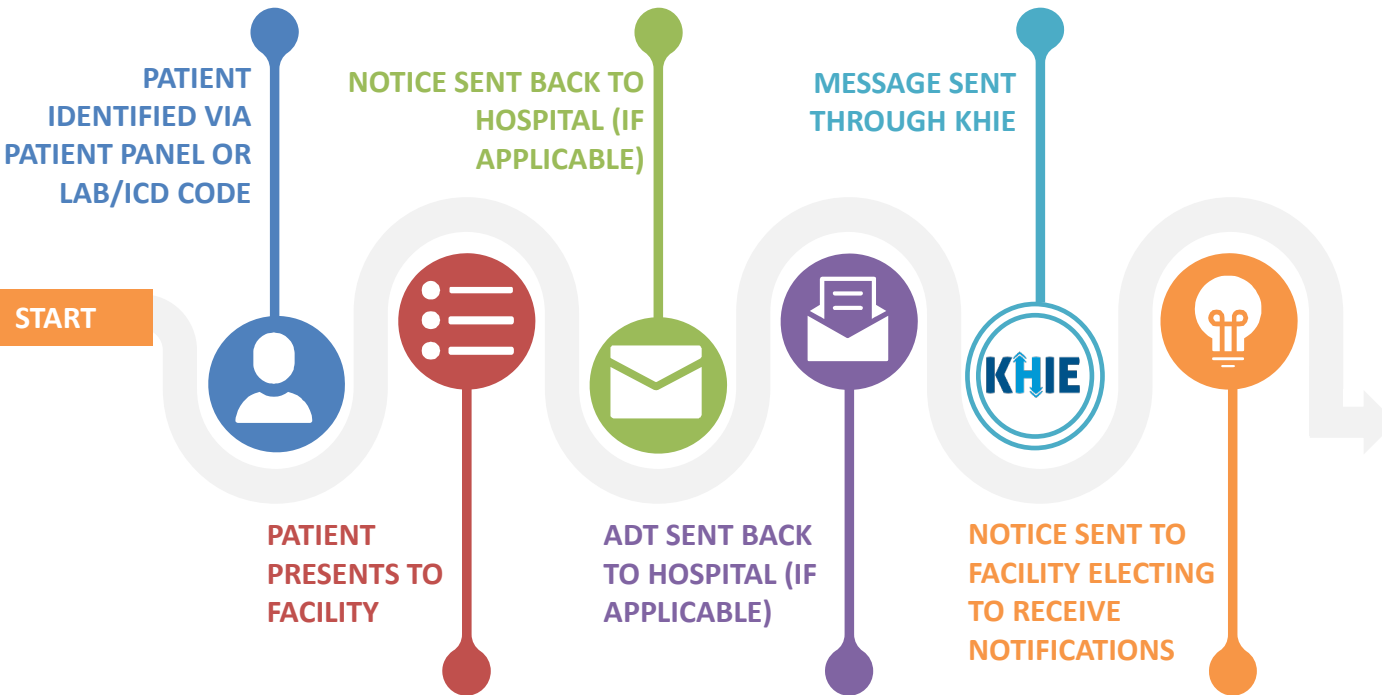
Patient Alert Query

KHIE's Patient Alert Queries help providers **stay informed about high visibility conditions**. The Patient Alert Queries service **retrieves the latest information** about a patient when they are searched in the ePartnerViewer or an organization's EMR/EHR system and **flags specific high impact conditions**.

1 COVID patient presents to facility

> 2 Query automatically sent to KHIE

3 KHIE sends patient info back to hospital

Direct Secure Messaging

CareAlign PORTAL

CareAlign is a web portal for users who do not have an EHR, or one without direct capabilities, to send direct secure messages.

Benefits:

- Assists in closing the gaps in care coordination
- Benefits providers without an EHR or HER without direct capabilities
- User friendly
- HIPAA Compliant
- **FREE**

DIRECT SECURE MESSAGING

The direct secure messaging services allows for simple, secure, stable, and standards-based way for users to send messages directly to recipient's EHR.

Message Flow:

Provider A   Secure Messages   **Provider B**
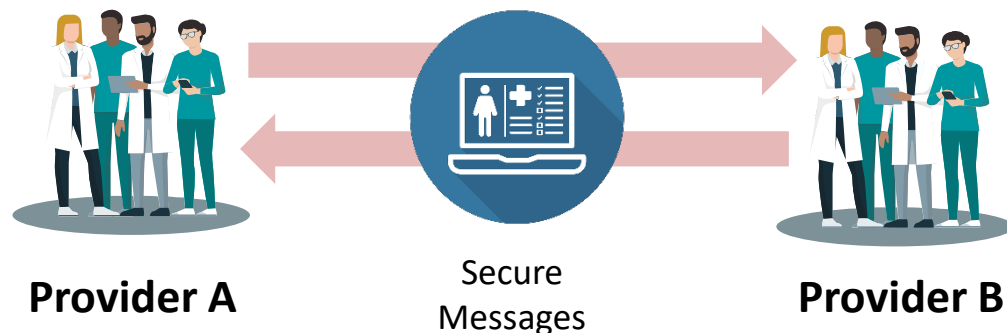
KHIE TRANSMITS OVER 40,000+ DIRECT SECURE MESSAGES A MONTH.

Image Exchange

A Diagnostic Image Enablement Solution

Facilitates clinical collaboration by breaking down departmental and organizational silos, enabling providers the ability to access and/or exchange medical images across connected organizations.

Integrating with the ePartnerViewer

Streamlines access to clinical images by allowing users, such as radiology administrative staff, to open the ePartnerViewer, search a patient, and preview radiology studies for that patient from other hospitals and providers.

Interoperability Capabilities

Provides the ability to exchange imaging data with other imaging systems, depending on connection capabilities, which will reduce the need for new radiology studies, disparate documents, and CD drive management.

Image Exchange

Systems with Image Enablement have a more holistic understanding of their patient imaging data while reducing duplicative imaging tests.

Minimize technology barriers, increase access to clinical images and eliminate need of CDs

Lower healthcare costs by reducing the amount of duplicate procedure

Improve patient satisfaction and **avoid re-exposure to radiation**

Improve speed of care continuum through securely exchanging imaging data with other organizations

Systems without Image Enablement may lead to incomplete and inaccurate patient imaging data while having a higher cost associated with imaging.

Increase materials and labor costs for burning imaging discs average $25 each

Increase risk of HIPAA violations by sharing images with contracted entities without additional security measures

Create **expensive re-work and increased administrative burden** resulting in higher costs for hospital and patients

Increase time to treat the patient due to repeat imaging procedures

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Social Determinants of Health

KHIE is collaborating with Kentucky's Resource Engine, kynect resources, to **create standardized, actionable Social Determinant of Health (SDoH) data** to improve holistic care coordination by linking residents to Community Partners and engaged healthcare organizations.

Contributing Health Factors

10%
Physical Environment

20%
Clinical Care

30%
Health Behaviors

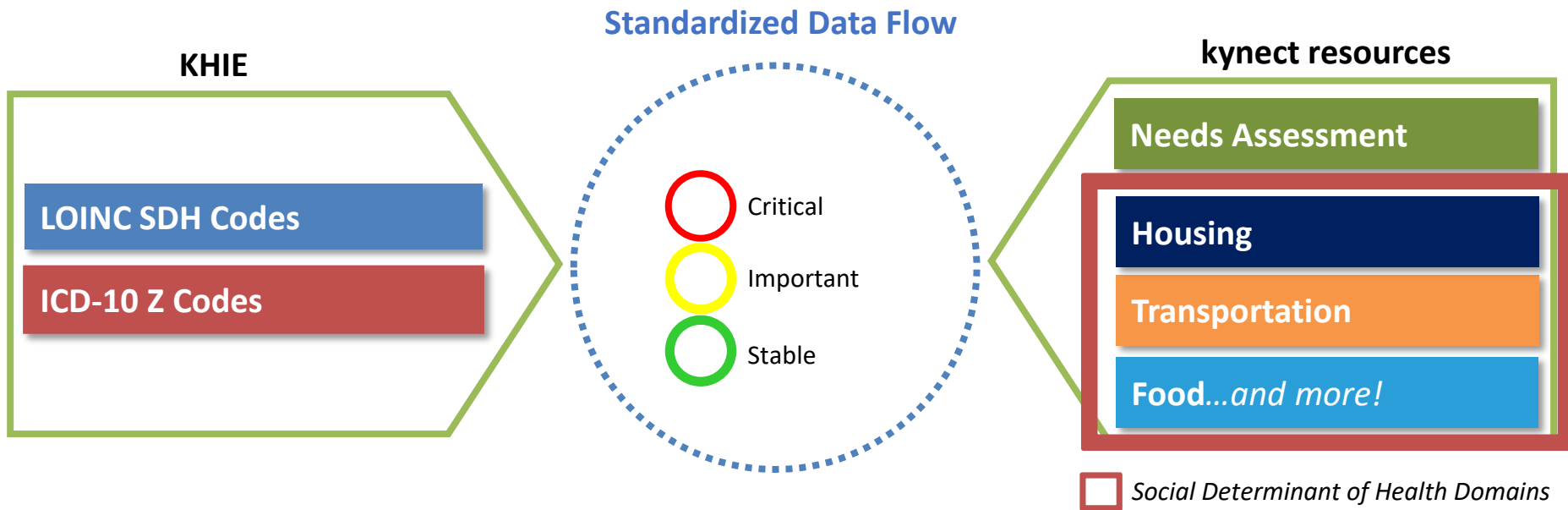**40%**
Social and Economical Factors

Per County Health Rankings

Social Determinants of Health

KHIE developed and now utilizes an **in-house tool** that **aligns SDoH data** found in **ICD-10 Z and LOINC SDH codes** to the **kynect resources Needs Assessment**.

Standardized Data Flow

KHIE

- LOINC SDH Codes
- ICD-10 Z Codes

○ Critical
○ Important
○ Stable

kynect resources

Needs Assessment

- Housing
- Transportation
- Food...*and more!*

☐ *Social Determinant of Health Domains*
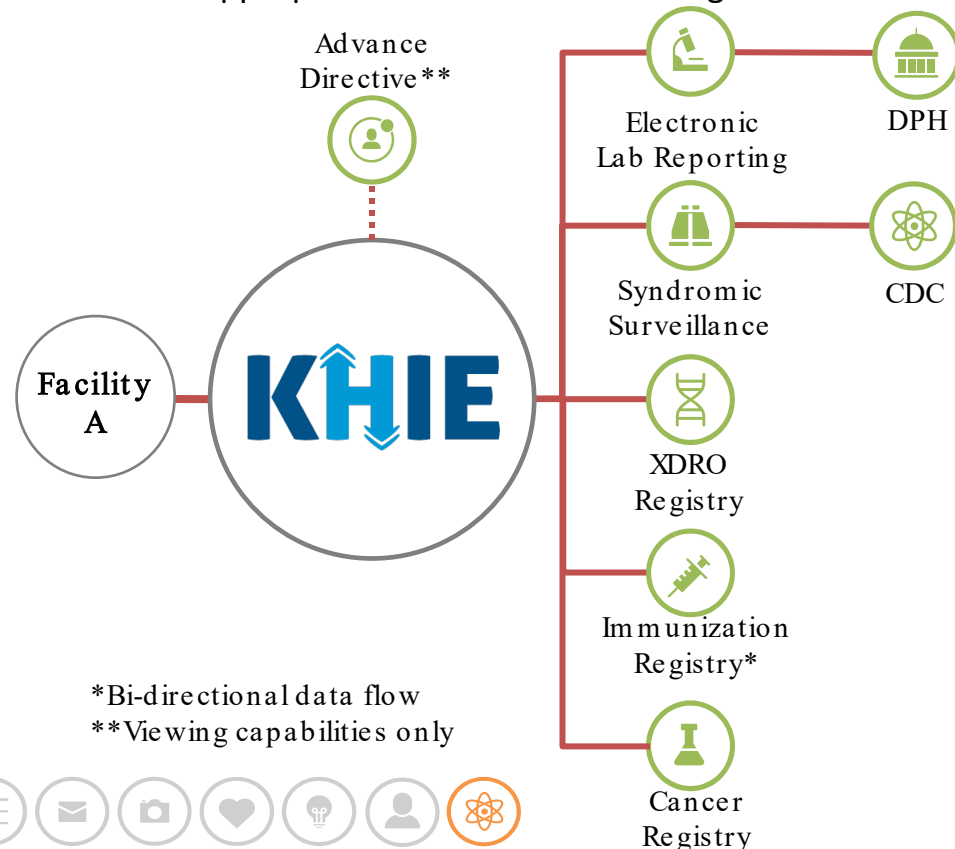
Public Health Reporting

TRADITIONAL CONNECTIONS

Historically, facilities would have to build connection points to individual registries.
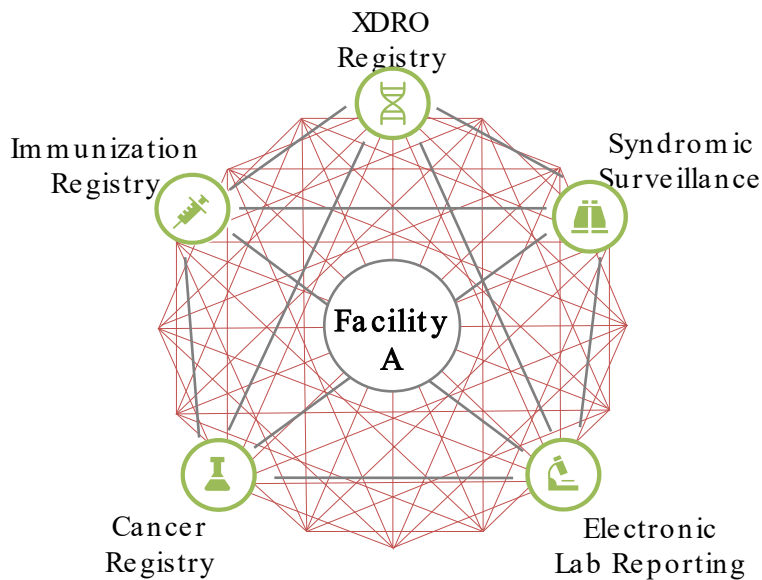
KHIE CONNECTION

Now, KHIE automatically directs the facility's data to the appropriate location with one single connection.

XDRO Registry

Immunization Registry

Syndromic Surveillance

Facility A

Cancer Registry

Electronic Lab Reporting

Facility A

Advance Directive**

KHIE

Electronic Lab Reporting

DPH

Syndromic Surveillance

CDC

XDRO Registry

Immunization Registry*

Cancer Registry

*Bi-directional data flow
**Viewing capabilities only

COVID-19 Reporting

Lab Results

- Logs the test and test results
- Used for positivity rating
- Positive and negative results must be submitted to DPH or LHD
  - Positive within 24 hours
  - Negative within 7 days

Case Reports

- Provides details of the case and individual
- Only required for positive results
- One form submitted to LHD

UPLOAD TYPES

Five COVID test reporting upload types through KHIE.

- HL7 VPN Feed
- HL7 SFTP Upload
- Direct Data Entry
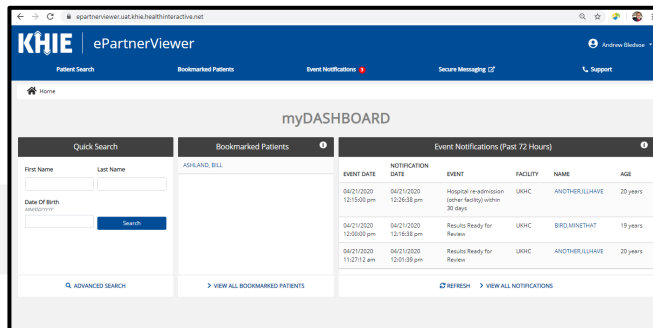- TEXT "Flat File" SFTP Upload
- HL7 Web Service Feed

Direct Data Entry

Direct Data Entry (DDE) creates a workflow in the ePartnerViewer that allows end-users to submit laboratory record information directly into KHIE. The DDE workflow **contains validations to ensure data quality**.

Positive COVID-19 Results from Laboratory X Entered into the ePartnerViewer

ePartnerViewer Passes Laboratory Results onto Public Health Registries

National Electronic Disease Surveillance System (NEDSS)

+

Kentucky Department for Public Health (KDPH)

KHIE Onboarding

1 — KHIE Intake

- Discovery Call
- Intake Call
- Participation Agreement

2 — Onboarding

- Connectivity
- Message Validation
- Testing

3 — Go Live

- Move to Production
- Monitor Incoming Feed

Learn More About KHIE

Visit khie.ky.gov to learn more. You can also email us at KHIE@ky.gov to begin the connection process or call us at 502-564-7992 EXT 2800.