

# UHIN

DRIVING HEALTHCARE SOLUTIONS FORWARD

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# Interoperability and Population Health

# OVERVIEW

Intro to UHIN

Value added by an HIE

Improved Population Health

Increased Risk Assessment Accuracy

Specific Use Cases in Utah w/ Demos

About

UHN



25th Anniversary  
Founded in 1993



Convened by community  
Non-profit

Lines of Business:

**CLEARINGHOUSE**

THE **CHIE**

**DATA ANALYTICS & BI**

**UHIN**

# TODAY

We are a successful non-profit clearinghouse

3 million +      3 million +      2 million +  
Claims/payment remittances monthly      Eligibility requests      Remittance advices

We are considered a gold-standard in HIE

5 million      53 million      Western hub  
Unique lives from UT and around the world      Records in the CHIE      Connected to other western states

# CLEARINGHOUSE

Providers get paid. Payers get solutions. Patients get care.



## Concierge Service

Electronic eligibility  
Claim submissions / status / scrubbing  
Remittance advices



## Coming down the pike

Transaction Lifecycle Management  
FHIR connectivity  
Electronic attachment web-based tool



# CLEARINGHOUSE

25 years of experience  
processing millions of HIPAA transactions every day

837

270/271

999

276/277

275

278

# THE CHIE

Helps providers and payers see their patient's whole story  
Patient's data follows them no matter where they go

## Tools

- ADT alert notifications
- Direct messaging
- Public health reporting
- Data normalization



Connected to  
**90%**  
of Utah hospitals

Including ALL the hospitals of ...

- HCA
- Steward
- Intermountain Healthcare
- University of Utah

- Last handful of independent Utah hospitals coming on line in 2018
- ADT alerts from other states
  - AZ, CO, ID, NE, NV, CA, MT, WY
  - WA & OR coming in 2018

# THE CHIE

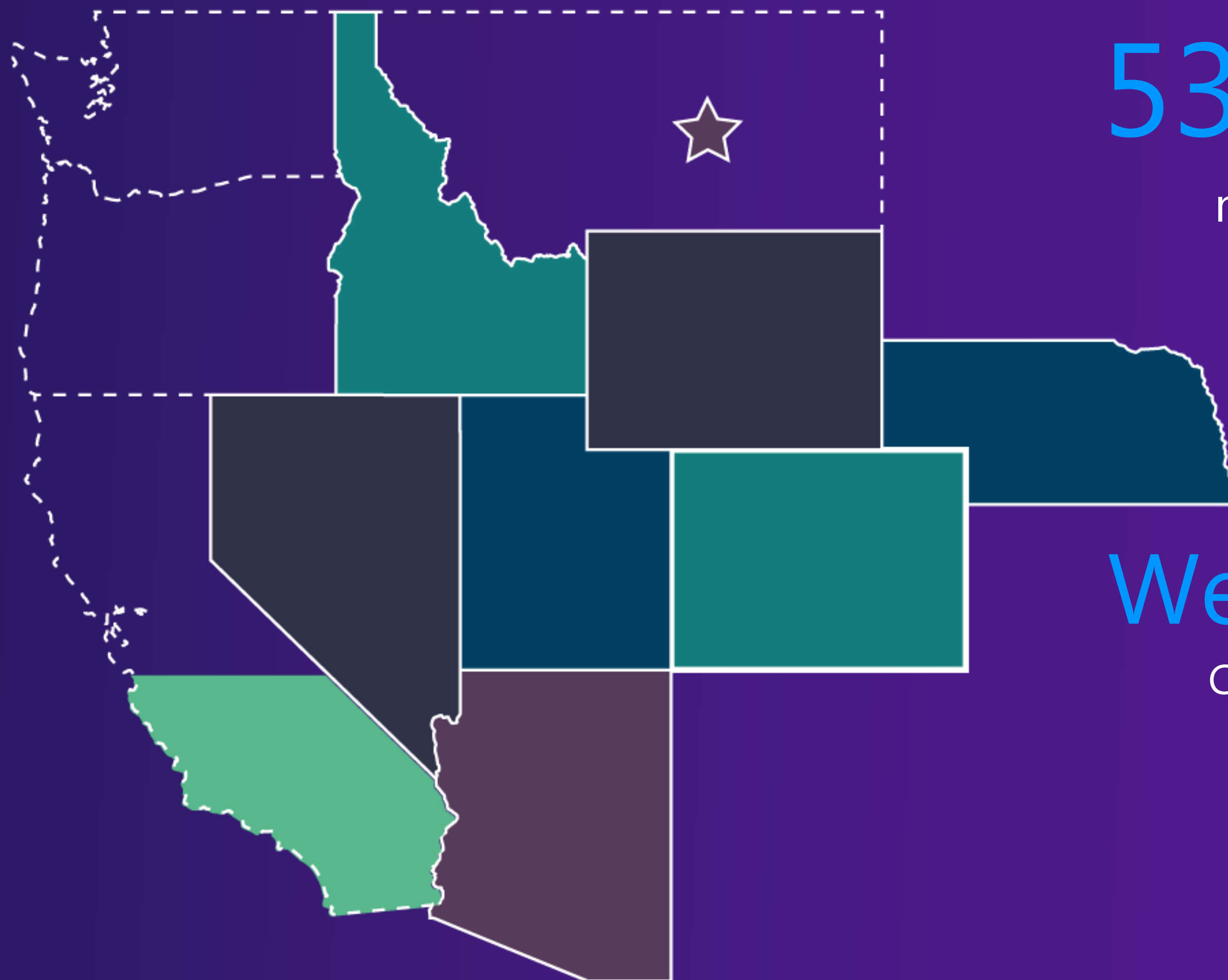
PCDH - Connecting the West

5 million

unique lives in MPI

500+

data sources



53 million

medical records

Western hub

Connected to other western states

UHIN

# DATA ANALYTICS & BI

Newest UHIN solution. Combines claims and clinical data.

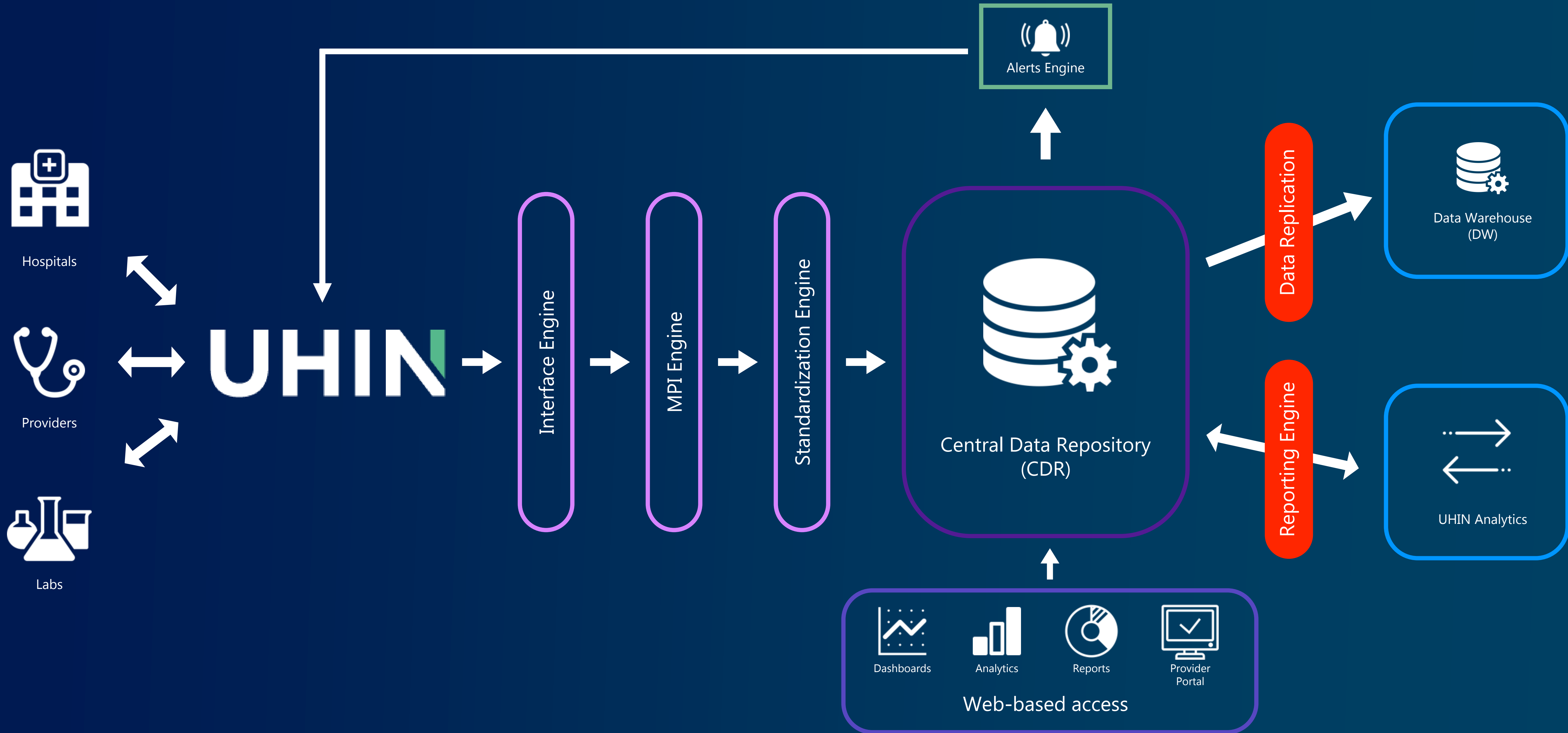
## Offering

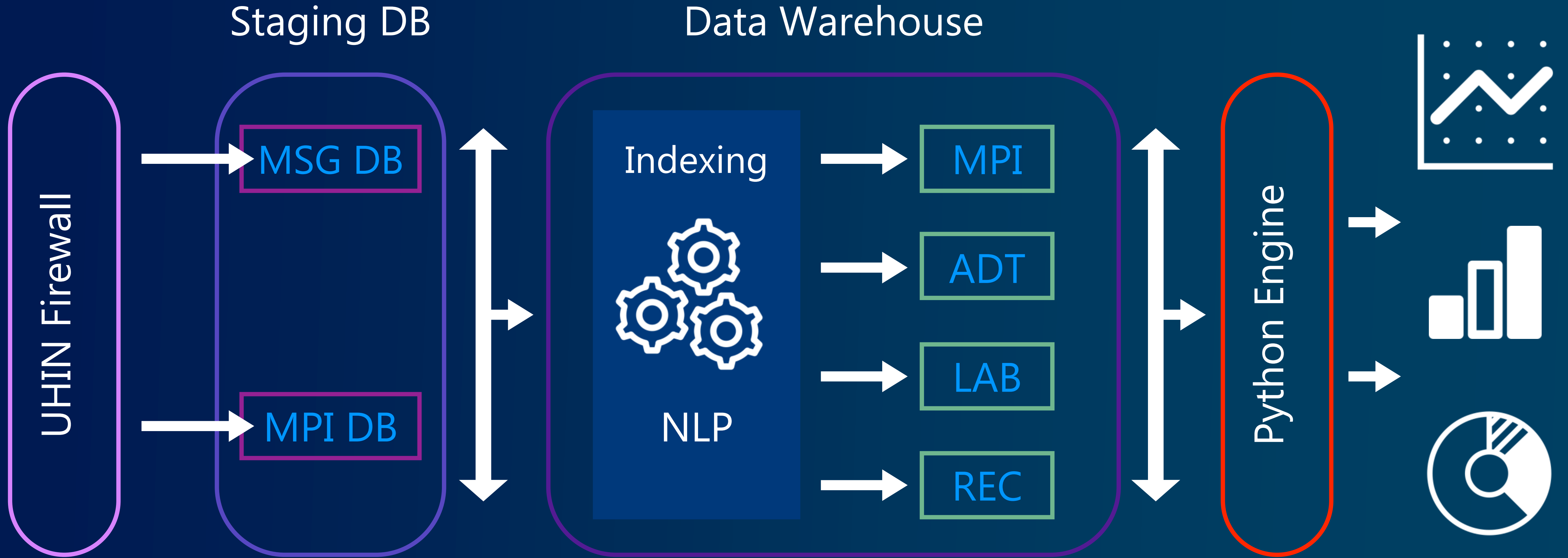
- Real-time data visualization dashboards
- Custom, actionable reports
- Filterable dashboards
  - Heat maps
  - Geomapping
  - Tables
  - And more!



# ARCHITECTURE

# Statewide HIE - Clinical Data Infrastructure





Once data is inside UHIN firewall, Mirth channel feeds it to a Staging Database

Different feed jobs run nightly

- Read data from Staging DB
- Populate it into individual data stores in the DW

During Extract, Transform, Load steps

- Standard HL7 fields are indexed
- From the unformatted text, Natural Language Processing Engine extracts
  - Problems
  - Procedures
  - Medications
  - Vitals

Custom Python scripts are developed

- Read from the DW data stores
- Generate data extract, which populated dashboards

# Adding Value



Providers



Payers



Hospitals



Public Health



Others



# PROVIDERS

Knowledge of the patient's whole story

## Value adds

- Comprehensive view of patient record
- Follow up on referrals
- Measure outcomes
- Fill gaps in care
- Decrease repeat exams / labs
- Data to participate in incentive programs



# PAYERS

Access, improved ratings and progress tracking

## Value adds

- Access to clinical data
  - Lab
  - Transcriptions
  - Radiology
  - Admissions / Discharges
- Improved outcome measures / star ratings
- Track progress not just adherence
- Better case management



# HOSPITALS

Better data, improved feeds

## Value adds

- Maintain / monitor fewer feeds
- Improved follow up after discharge via alerts
- Better readmission data
- Identity management assistance



# PUBLIC HEALTH

Monitoring and preparation

## Value adds

- Chronic disease monitoring
- Epidemiology
- Disaster preparation
- Registries
- Cost of connections



# OTHERS

- Long-term care
- Home health
- Behavioral health
- EMS
- Poison control
- Etc.



# OBSTACLES TO POPULATION HEALTH ANALYSES



Complete sets of data  
(including from outside the health system)

Clean data

Normalized data

Unstructured data

Duplicate data

# POPULATION HEALTH SOLUTIONS



Comprehensive view of patient population

Data normalization layer

Combination of clinical and claims

Natural language processing (NLP)

Actionable tools

# RISK ASSESSMENT



Comprehensive view of patient history

Claims vs clinical information

NLP vs structured data

Actionable tools



# USE CASES



Risk assessment



Diabetes



Syndromic Surveillance



Readmissions

# Accurate Complete Risk Assessment

## Risk Adjustment Analysis Architecture



Jay Z

# ICD-X from Clinical Notes

## Original

abdomen:

skin small red bump rt axilla no discharge:

### **Assesment and Plan:**

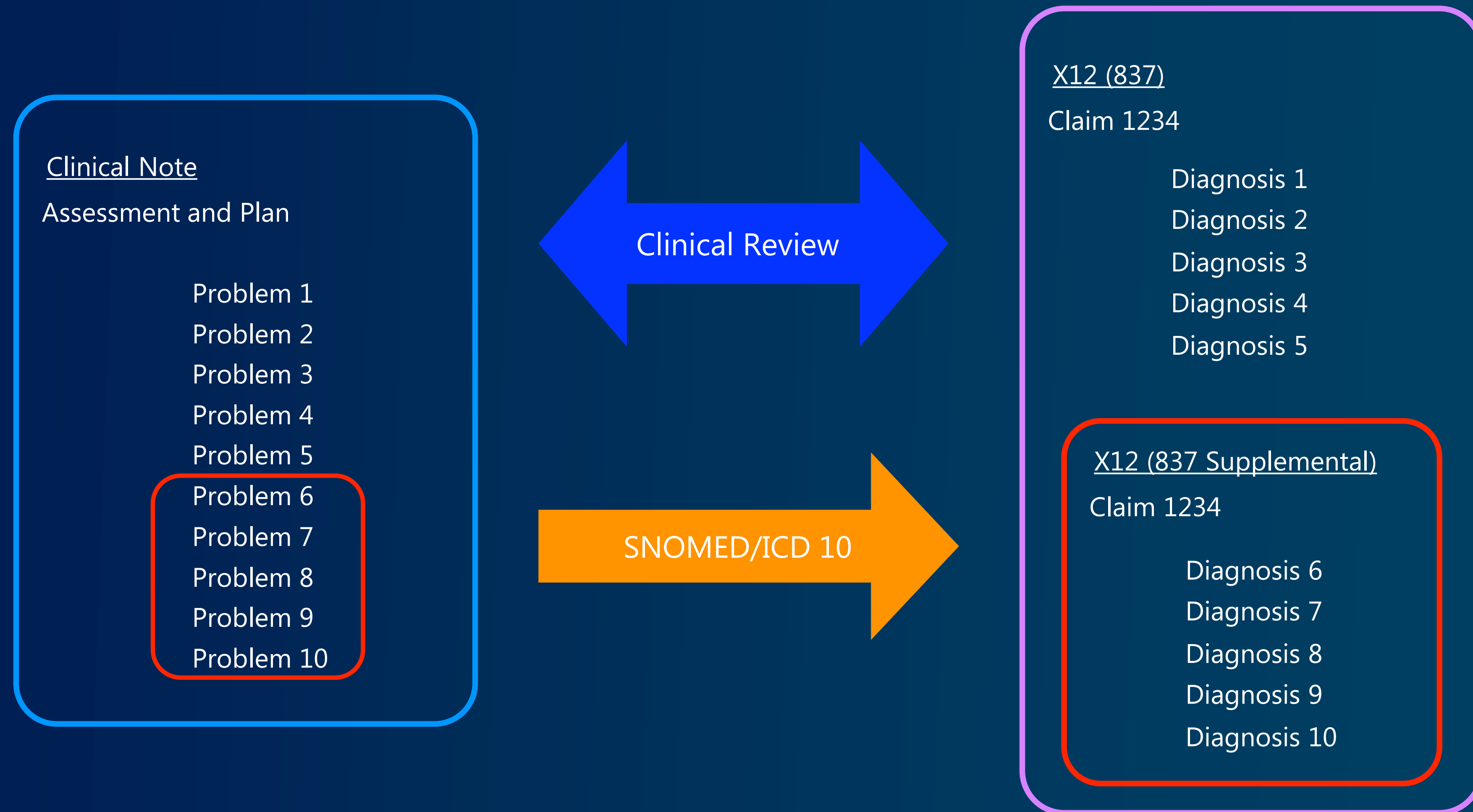
CELLULITIS/ABSCES : 682.2

Plan: Patient will take full course of antibiotics and use moist heat applied to the affected area three to four times per day. Patient will return to clinic if expanding erythema or worsening of condition. If discharge present, patient was recommended to attempt expressing discharge from area, but do not try to cut or poke area with needle.

FATIGUE : 780.79

-New Diagnosis

# Harvesting Diagnoses from Clinical Notes



# DEMONSTRATION



QUESTIONS / THUNDEROUS APPLAUSE

