

# Wellness Watch Enterprise Data Warehouse (EDW)

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NURS 5332 – Informatics II

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# Overview

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- ❖ Source Systems Map
- ❖ Extract, Transform, Load (ETL) Process
- ❖ Data Model (Star Schema)
- ❖ Data Governance & Quality
- ❖ EDW Pipeline Design Visual
- ❖ Dashboard Mockup
- ❖ Summary of Operational Definitions
- ❖ Participation Statement
- ❖ Generative AI Attestation
- ❖ References

# Source Systems Map

## Wellness Watch EDW

Source System	Data Type	Example Data	Refresh Frequency	Owner/Governing Body
Health Clinic EHRs	Structured & Unstructured	Vital Signs, Patient Demographics, BMIs, Provider Notes, Images	Daily or real-time	Healthcare System, Providers/ONC, CMS
Community Programs Registry	Structured & Unstructured	Community Health Program Attendance, County of Program, Completion Status	Monthly	Public Health Department
Pharmacy Data	Structured	Adherence Rates, Medications, Conditions	Weekly	Pharmacy Network/TSBP
Public Health Data	Structured	Population, Obesity Rate, Flu Vaccination Rates	Quarterly	Texas DSHS
SDOH Data	Structured	Incomes, Education, Rurality	Annually	U.S. Census Bureau

# Extract, Transform, Load (ETL) Process Overview

## Extract (Getting the Data)

- ❖ **EHR Data:** Pulled directly from the EHR platform report system
- ❖ **Pharmacy Data:** Obtaining data from pharmacy claims, directly from pharmacy, or from TSBP prescription drug monitoring database
- ❖ **Community Programs:** Spreadsheet data provided by county health departments
- ❖ **Public Health and SDOH Data:** Downloaded from public health databases or state health report

(Stair & Reynolds, 2018, Chapter 3)

# Extract, Transform, Load (ETL) Process Overview

## Transform (Cleaning and Preparing the Data)

- ❖ Fixing missing or inconsistent information (e.g., standardizing gender codes or date formats)
- ❖ Ensuring measurements are in the same units (e.g., imperial vs. metric system)
- ❖ Matching up data by location or time (e.g., connecting ZIP codes to counties)
- ❖ Eliminating duplicate entries and obvious errors.

(Stair & Reynolds, 2018, Chapter 3)

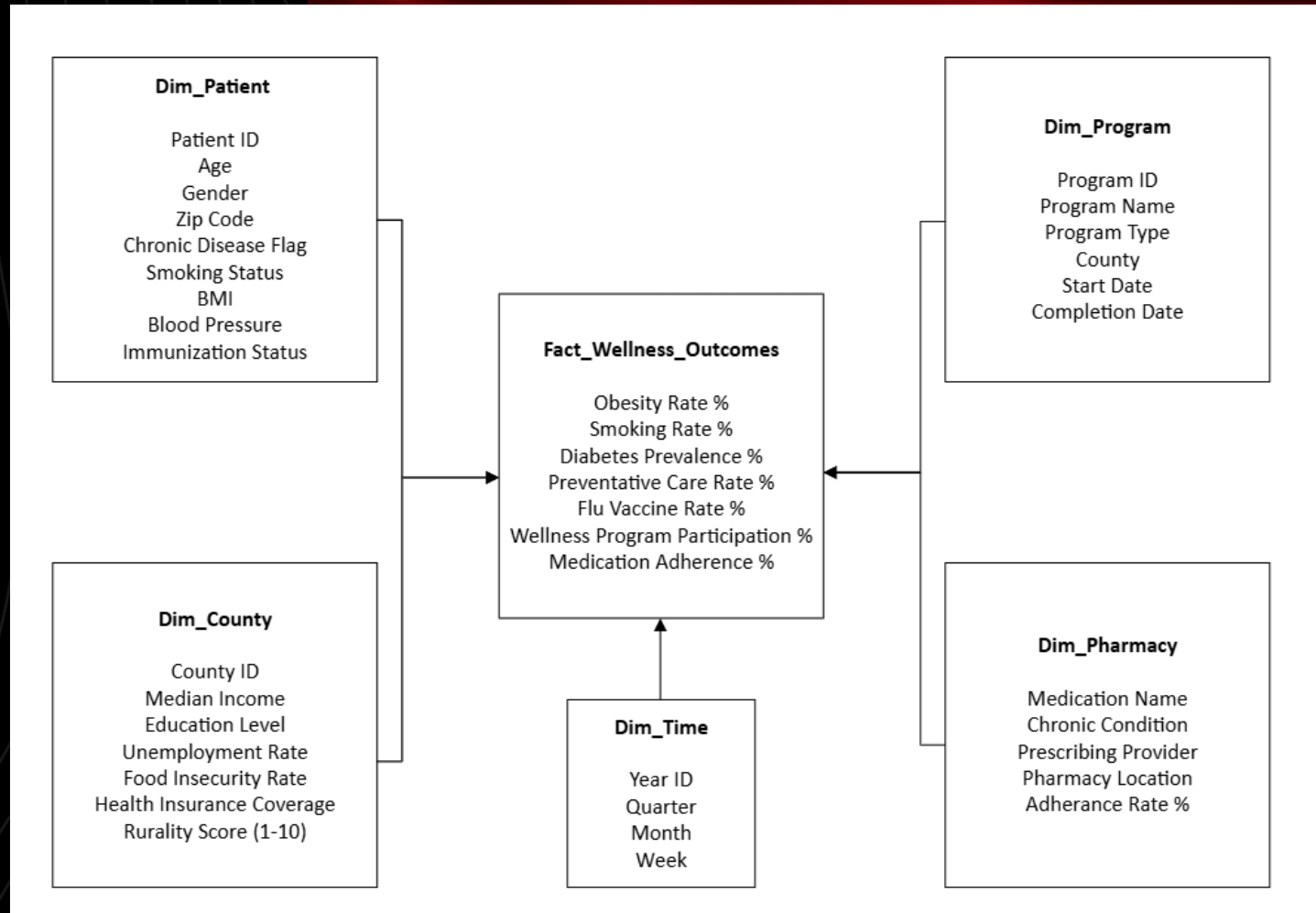
# Extract, Transform, Load (ETL) Process Overview

## Load (Putting the Data into the Warehouse)

- ❖ All the key measures go into one main *Fact Table* (the central dataset).
- ❖ Supporting information like counties, programs, or years are stored in *Dimension Tables*.
- ❖ The database is organized so that it is fast and easy to run reports and build dashboards.

(Stair & Reynolds, 2018, Chapter 3)

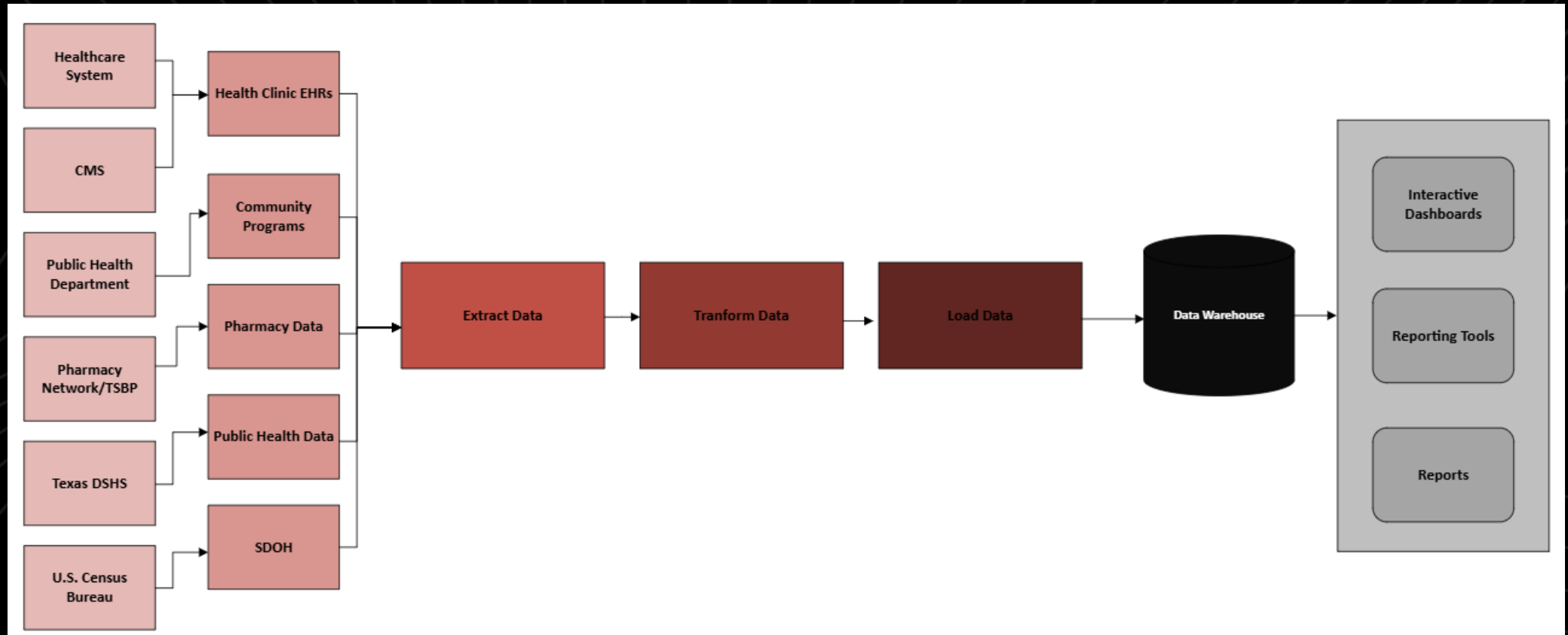
# Data Model (Star Schema)



# Data Governance & Quality

#	KPI	Data Stewards	Ensure Accuracy/Completeness/Timeliness
1	Increase Wellness Program participation by 10% by January 2026.	Community Health Program Coordinator	<b>Accuracy:</b> Validate program rosters monthly <b>Completeness:</b> Perform quarterly audits <b>Timeliness:</b> Data submitted monthly
2	Increase Medication Adherence by 20% by June 2026.	Pharmacy Informatics Analyst	<b>Accuracy:</b> Validate data and remove anomalies and obvious errors <b>Completeness:</b> Require all network pharmacies to submit monthly reports <b>Timeliness:</b> Monthly reporting schedule
3	Increase Flu Vaccine Coverage by 25% by December 2025.	Public Health Informatics Nurse	<b>Accuracy:</b> Reconcile clinic logs with state immunization registry data <b>Completeness:</b> Require all affiliated clinics to submit vaccination records. <b>Timeliness:</b> Data uploaded to the dashboard within two weeks after each vaccination campaign period
4	Increase Preventative Visit Rates by 10% by March 2026.	Clinical Informatics Nurse	<b>Accuracy:</b> Use EHR to flag eligible preventive visit codes and conduct chart audits on 25% of charts monthly <b>Completeness:</b> Require providers to review and close incomplete encounters <b>Timeliness:</b> Preventive care data updated monthly
5	Increase Healthcare Coverage Rate to at least 90% average across all five counties by June 2026.	U.S. Census Bureau	<b>Accuracy:</b> Follow U.S. Census Bureau's established statistical quality standards for demographic and socioeconomic data <b>Completeness:</b> Data collected through mandatory federal surveys <b>Timeliness:</b> Updated annually through the ACS

# EDW Pipeline Design Visual



# Dashboard Wireframe Mockup

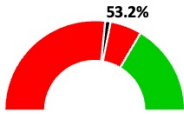


## Wellness Watch: Rural Health & Preventive Care Dashboard

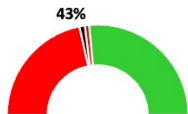
Mission: Tracking community wellness, preventive care, and health outcomes across rural counties.

As of October 20, 2025

**Flu Vaccine Coverage**  
2024 = 53.2%  
Target 66.5% by January 2026



**Wellness Program Participation**  
2024 = 43.0%  
Target 47.3% by June 2026



**Medication Adherence**  
2024 = 71.9%  
Target 86.3% by December 2025



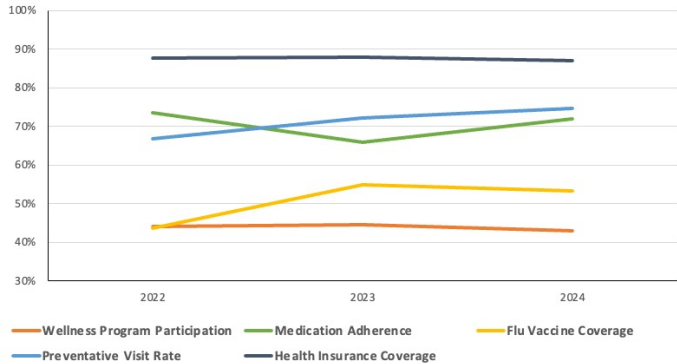
**Preventative Visit Rate**  
2024 = 72.7%  
Target 82.2% by March 2026



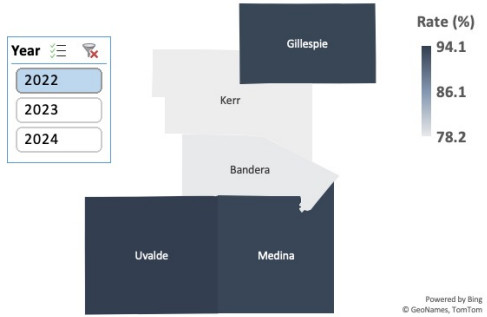
**Health Insurance Coverage Rate**  
2024 = 86.9%  
Target 90% by June 2026



KPI Trends 2022-2024

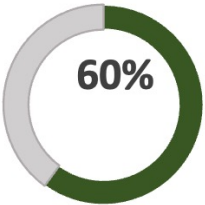


Health Insurance Coverage Rate by County (%)

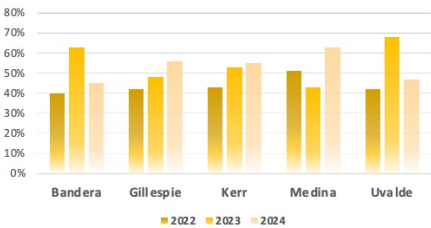


2022

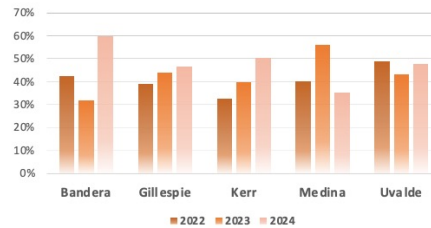
% of Patients Below 80% Medication Adherence per Year



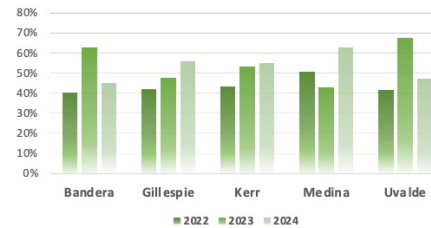
FLU VACCINE COVERAGE BY COUNTY



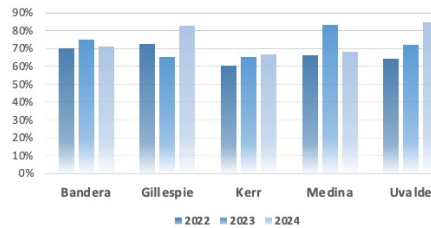
WELLNESS PARTICIPATION BY COUNTY



MEDICATION ADHERENCE BY COUNTY



PREVENTATIVE VISIT RATE BY COUNTY



# Summary of Operational Definitions

Key Performance Indicators	Definition	Data Source	Calculation Details
Increase Wellness Program participation by 10% by January 2026.	Measures percentage of eligible participants attending wellness programs	Community_Programs (Program_Name, Attendance_Rate(%), Completion_Status)	Numerator: Total participants who attended at least one session Denominator: Total eligible participants per program Target: +10% by Jan 2026
Increase Medication Adherence by 20% by June 2026.	Percentage of patients maintaining ≥80% adherence to prescribed medication	Pharmacy_Data (Adherence_Rate(%), Medication_Name, Chronic_Condition)	Numerator: Patients with adherence ≥80% Denominator: All patients with chronic medication Target: +20% by Jun 2026
Increase Flu Vaccine Coverage by 25% by December 2025.	Proportion of population receiving flu vaccine within a year	EHR_Data (Immunization_Status), Public_Health_Data (Flu_Vaccine_Coverage(%))	Numerator: Individuals with flu vaccine recorded Denominator: Total eligible population Target: +25% by Dec 2025
Increase Preventative Visit Rates by 10% by March 2026.	Percentage of population completing recommended preventive care visits.	EHR_Data(Preventive_Visit_Date), Public_Health_Data (Preventive_Visit_Rate[%])	Numerator: Patients with a preventive visit within last 12 months Denominator: Total active patients Target: +10% by March 2026
Increase Healthcare Coverage Rate to at least 90% average across all five counties by June 2026.	Percentage of population with active health insurance coverage.	SDOH_Data (Preventive_Visit_Rate[%])	Numerator: Individuals with active health insurance coverage Denominator: Total population Target: 90% average or greater across all counties by June 2026

# Statement of Participation

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We, Stephanie McNeese and Belinda Merkel-Coleman, collaborated equally on this assignment. We utilized email to pass the documents back and forth, each working on a portion before passing it to the other. In this way we were able to equally contribute to the work and timely completion of the assignment.

Stephanie McNeese completed the geomap, KPI trends, and banner aspects of the dashboard. Belinda Merkel-Coleman completed the speed gauges and donut chart with year selection aspects of the dashboard.

We both worked equally and take responsibility for the PowerPoint presentation, operational definitions, bar graphs, and layout of the dashboard.

# Generative AI Attestation



We attest that we used a generative AI tool in accordance with course guidelines and assignment-specific permissions. Stephanie used ChatGPT (OpenAI, 2025) on October 12, 2025, for the purpose of creating a hypothetical data set and suggesting an outline for completing the assignment. The prompt(s) used included: “Can you create me a hypothetical data set for this assignment?” and, “I need help starting this assignment.” Stephanie used ChatGPT again on October 13, 2025; the prompt(s) used included: “What insights about the data can you give me to kick off my dashboard?” Belinda used ChatGPT on October 17, 2025; the prompt(s) used included: “Design different brand logos for a wellness watch dashboard.”

All AI-generated content was critically reviewed, edited, and appropriately integrated with our own academic and clinical reasoning. Slides where generative AI was utilized are indicated in the notes.

# References

- Centers for Medicare & Medicaid Services. (2024, September 10). *Certified EHR technology*. <https://www.cms.gov/medicare/regulations-guidance/promoting-interoperability-programs/certified-ehr-technology>
- OpenAI. (2025). ChatGPT (GPT-5, October 13 version) [Large language model]. <https://chat.openai.com/chat>
- Stair, R. M., & Reynolds, G. W. (2018). *Fundamentals of information systems* (9th ed.). Cengage.
- State Health Access Data Assistance Center. (2025, August). *Federal survey data release schedule*. <https://www.shadac.org/federal-survey-data-release-schedule>
- Texas State Board of Pharmacy. (n.d.). *Texas State Board of Pharmacy mission and action statements*. <https://www.pharmacy.texas.gov/about/mission.asp>