

EMORY

NELL HODGSON WOODRUFF SCHOOL OF NURSING

Project NeLL:
A Tool for Educating Nurse Scientists for the Age of Information

CONTENTS

- Why Project NeLL™?
- What is Project NeLL™?
- Project NeLL™ history
- Challenges
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- Project NeLL™ future

DISCLOSURE

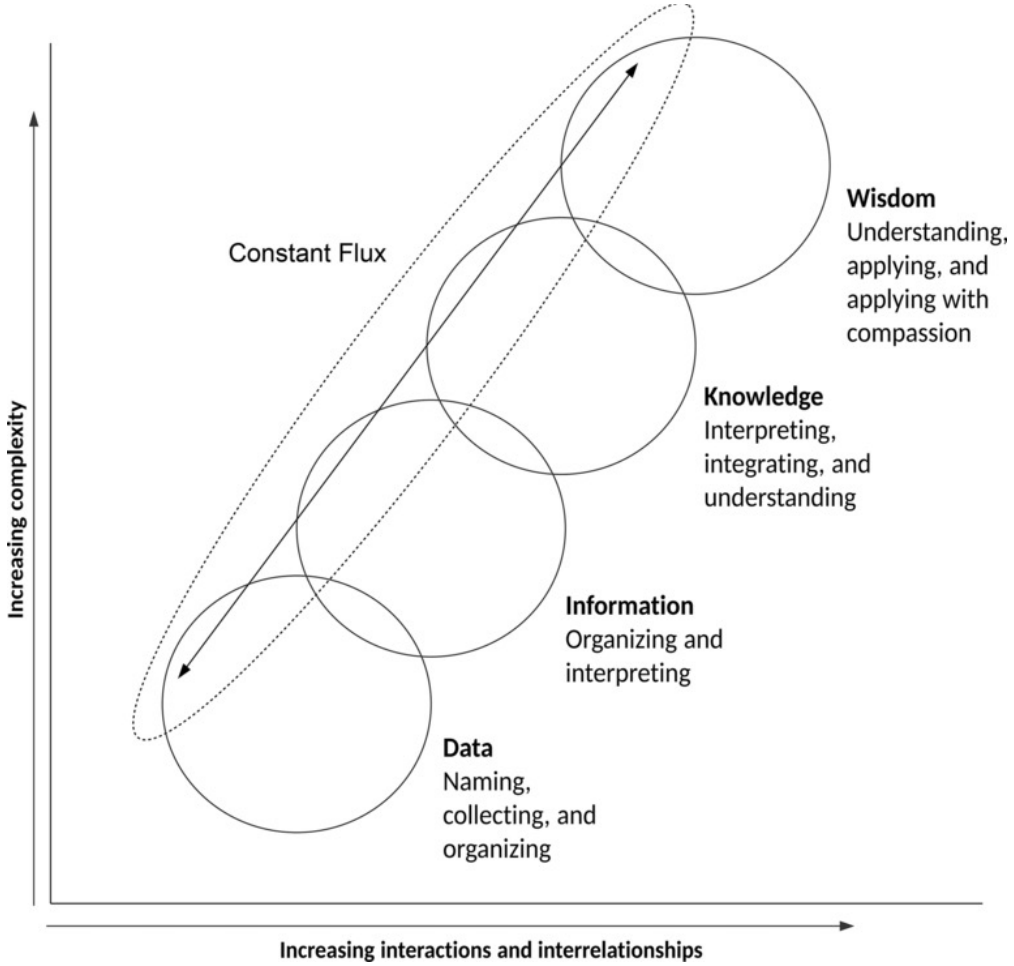
- Partial ownership of Project NeLL™ IP

IF YOU CAN CHANGE NURSING, YOU CAN CHANGE HEALTHCARE

- Nurses are the largest segment of the healthcare workforce
- They spend the most time with patients
- Therefore…

HOW CAN WE SUPPORT NURSES IN CHANGING HEALTHCARE?

- Implement evidence-based practices as they accumulate
- Develop evidence-based practices where none exist
- Enable nurses to develop data-driven evidence-based practices



DIKW Framework, image from Brennan & Bakken, 2015





WHAT SHOULD A NURSE DO WHEN THEY HAVE A HUNCH?

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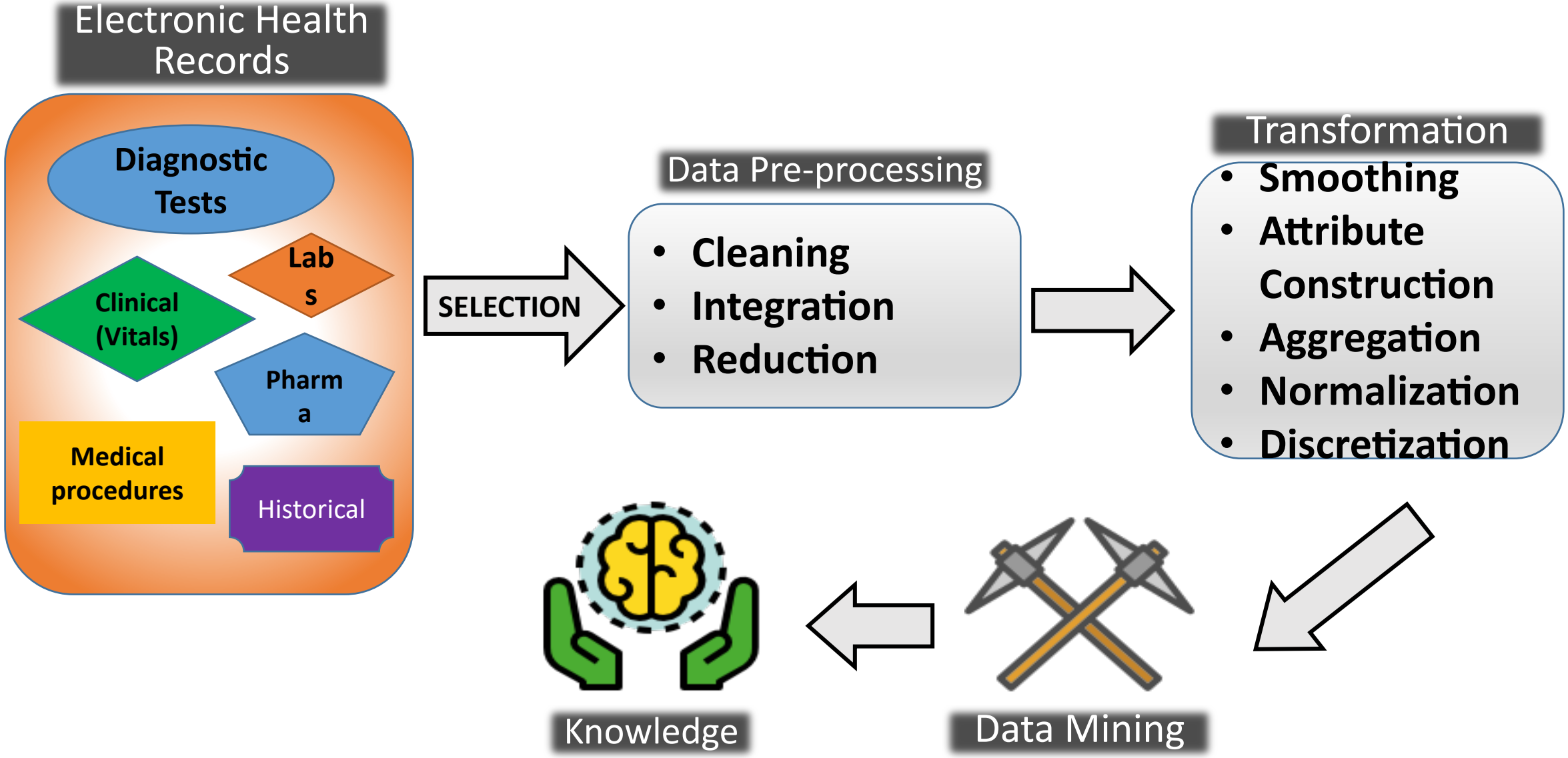
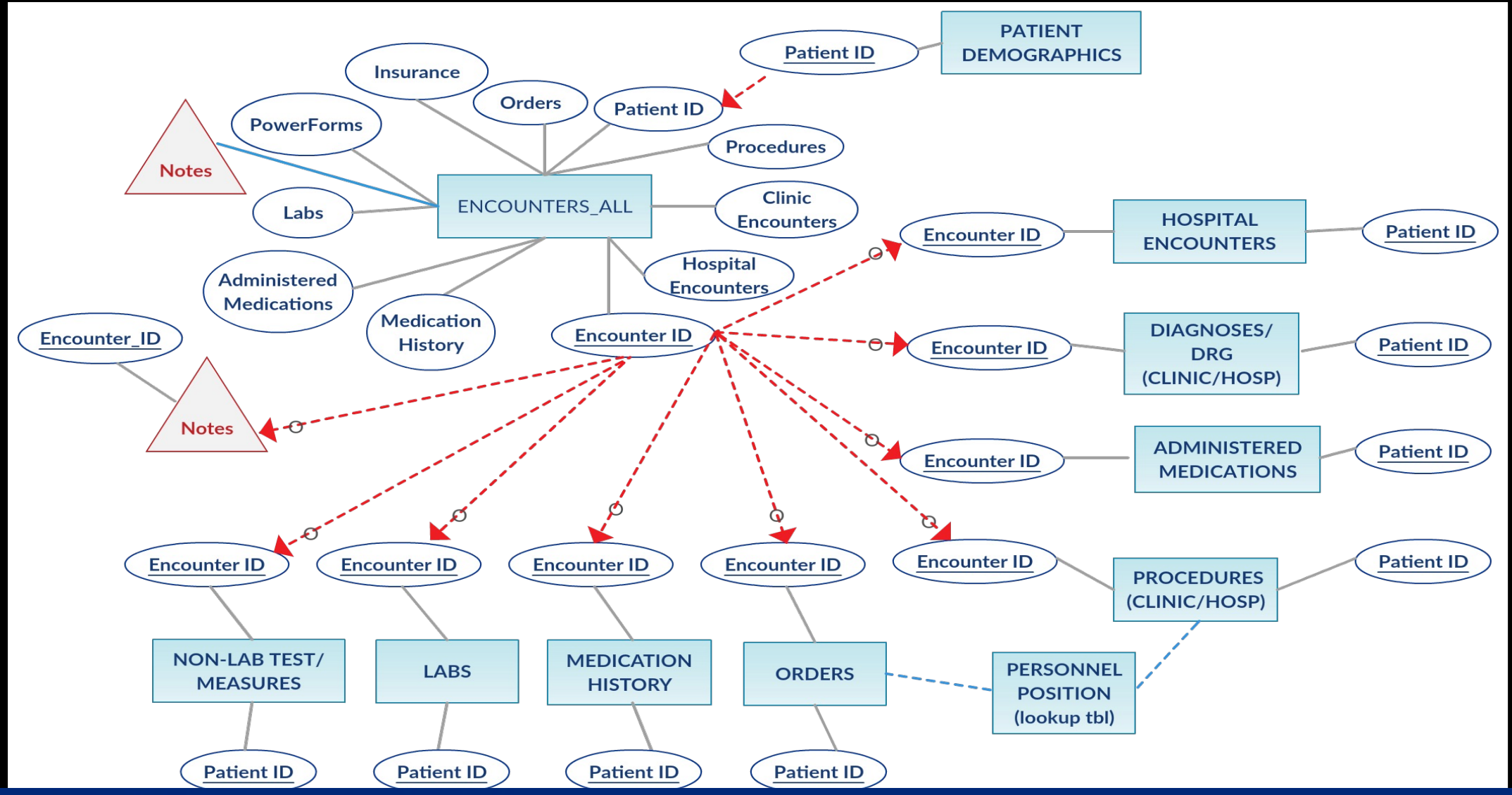
CENTER FOR DATA SCIENCE

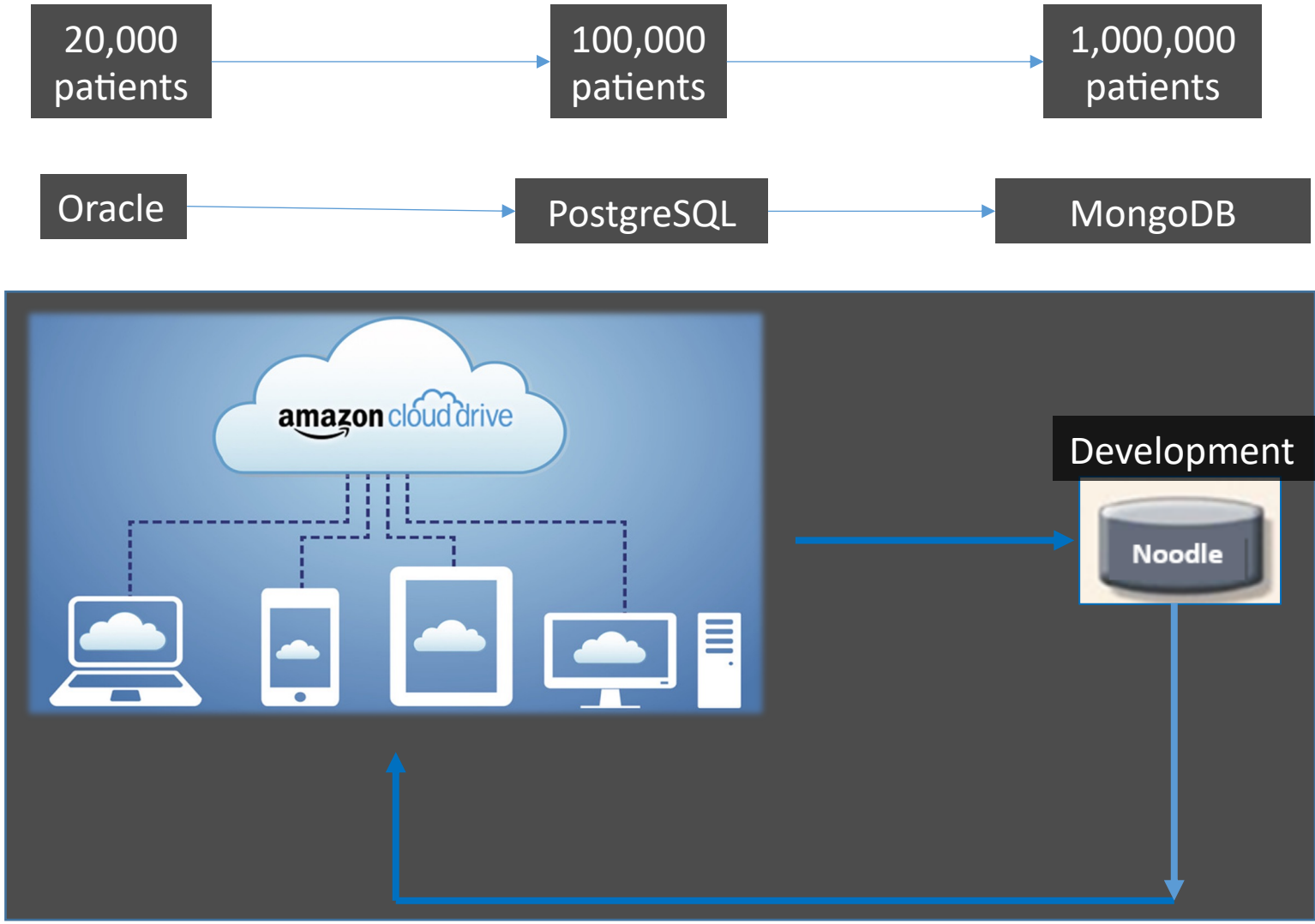
INTRODUCING PROJECT NELL™

- Nursing electronic Learning Laboratory
- Deidentified electronic health records for randomly selected sample of Emory Healthcare patients across the care continuum
- Small dataset to help nursing students learn how to use EHR data to support their hunches in the clinical setting


Electronic Health Records
Diagnostic Tests
Lab s
Clinical (Vitals)
Pharm a
Medical procedures
Historical
SELECTION
Data Pre-processing
• Cleaning
• Integration
• Reduction
Transformation
• Smoothing
• Attribute Construction
• Aggregation
• Normalization
• Discretization
Knowledge
Data Mining


PATIENT DEMOGRAPHICS
Patient ID
Insurance
Orders
Patient ID
PowerForms
Procedures
Notes
ENCOUNTERS_ALL
Labs
Clinic Encounters
Administered Medications
Medication History
Hospital Encounters
Encounter_ID
Encounter ID
Notes
HOSPITAL ENCOUNTERS
Encounter ID
Patient ID
DIAGNOSES/ DRG (CLINIC/HOSP)
Encounter ID
Patient ID
ADMINISTERED MEDICATIONS
Encounter ID
Patient ID
PROCEDURES (CLINIC/HOSP)
Encounter ID
Patient ID
Encounter ID
Encounter ID
Encounter ID
Encounter ID
NON-LAB TEST/ MEASURES
LABS
MEDICATION HISTORY
ORDERS
PERSONNEL POSITION (lookup tbl)
Patient ID
Patient ID
Patient ID
Patient ID

INFRASTRUCTURE



Project NeLL™ Today

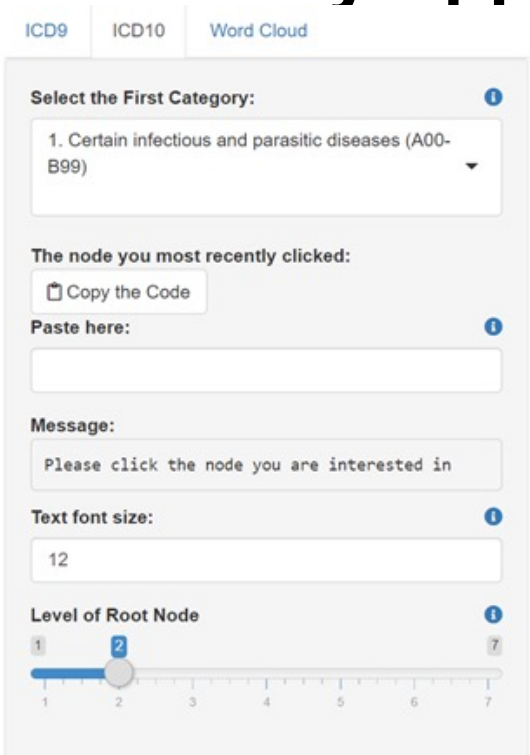
V1.0 - > 1,000,000 patients

- 2012-2020 (addition through end of 2021 in process)
- Cleaned
- Data dictionary
- Includes clinical notes

Front End

From: https://charlenewsh.shinyapps.io/ICDNEW/

R Shiny App







Current Challenge

October 1, 2022 conversion of Emory Healthcare EHR vendor from Cerner to EPIC

What else?

- Short courses on quantitative tools for large data sources available online through Emory Nursing Experience
- Distribution to other Schools of Nursing for use in courses for doctoral students
- Ongoing development of case studies

Outcomes

- PhD dissertations
- DNP projects
- BSN honors theses
- Faculty research and presentations

Versions 2.0 and Beyond!

- Incorporate data from Children's Healthcare of Atlanta (CHOA)
- Incorporate data from Grady Health System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Thank you

References

Brennan, P. F., & Bakken, S. (2015). Nursing needs big data and big data needs nursing. Journal of Nursing Scholarship, 47(5), 477-484..