

Improving Information Gathering Through Natural Language Processing of Patient Signs and Symptoms in the Electronic Health Record

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How is the
diagnostic process
capturing the patient
experience?

Information Integration and Interpretation



Patient History



Physical Exam



Observation



Diagnostic Tests



Monitoring Devices



Referrals and Consultations



Medical Record / EHR

Definitions

- Medical record (a.k.a. health record, patient chart)
 - A record of a patient's medical information¹
 - Includes diagnoses, clinical notes, test results, treatments and procedures, social and family history, medications taken
- Electronic health record (EHR)
 - Often considered synonymous with electronic medical record (EMR)
 - A digital version of a patient's paper chart [that] are real-time, patient-centered records that make information available instantly and securely to authorized users.²

1. <https://www.merriam-webster.com/medical/medical%20record>

2. <https://www.healthit.gov/faq/what-electronic-health-record-ehr>

Most Commonly Used EHR Vendor Systems

Inpatient Market Share¹

Vendor	% Hospitals
Epic*	36%
Oracle Cerner	25%
Meditech	16%
CPSI	8%
Other	15%

Outpatient Market Share²

Vendor	% Practices
eClinicalWorks	14%
Epic	10%
Athenahealth	8%
NextGen	5%
Other	64%

*Virtually all academic medical centers

1. <https://www.beckershospitalreview.com/ehrs/ehr-vendor-market-share-in-the-us.html>. Accessed July 15, 2024.
2. <https://www.definitivehc.com/blog/top-ambulatory-ehr-systems>. Accessed July 15, 2024.

EHR – Primary Purposes



BILLING

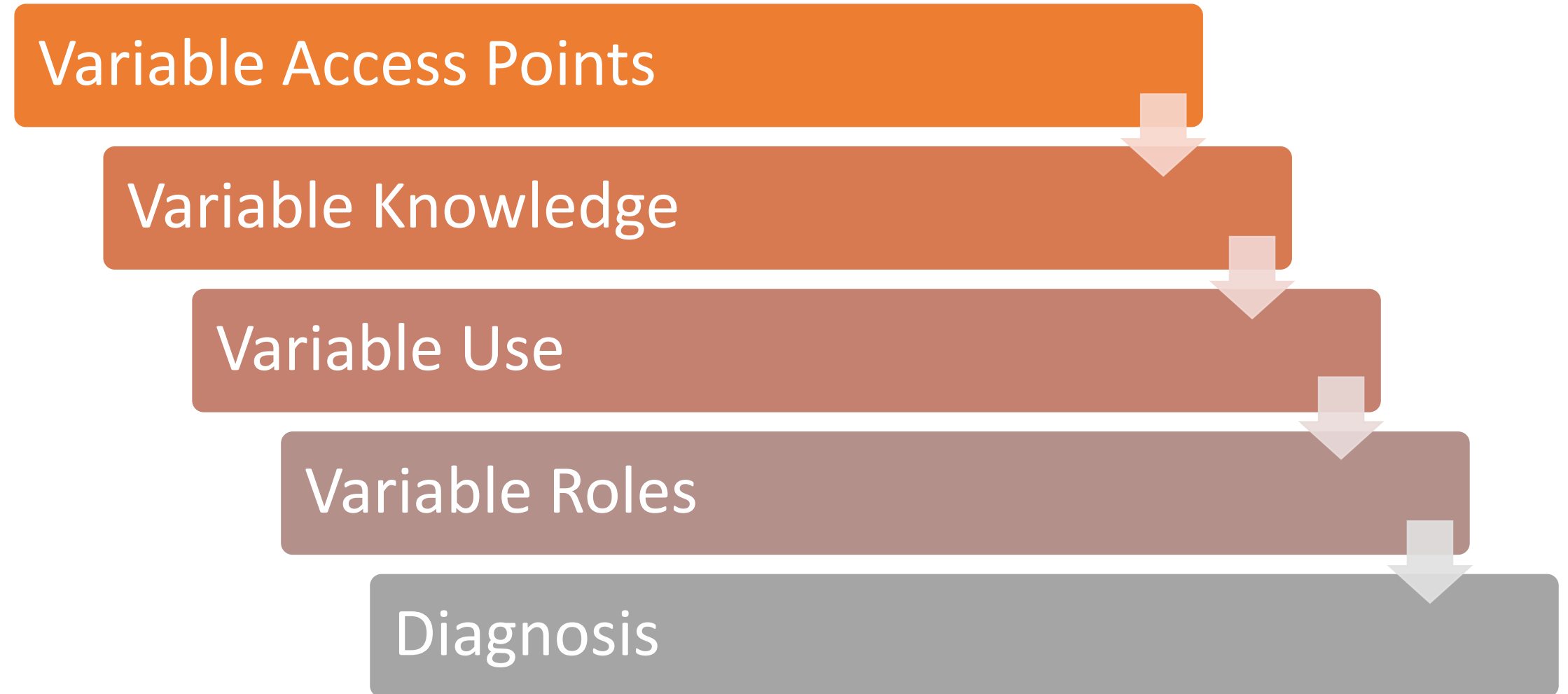


QUALITY REPORTING AND
REGULATORY COMPLIANCE



CLINICIAN
DOCUMENTATION

Variability in Information Flow



Extracting Signs and Symptoms - State of the Art

EHR



Copilot

Your everyday AI companion

Multi-Modal Learning - State of the Art

- Natural Language Processing (NLP)
 - Human voice/writing → Computer language
- LLM models
 - Summarization of multiple streams of information
 - Scans
 - Labs
 - Note content
 - Vital sign in flowsheets
 - Image reports
 - Ambient voice recording

Ambient voice

Nabla

OverviewAITestimonialsAPICompany

EN

Sign in

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Clinical note

Fatigue and headache

CHIEF COMPLAINT

Headaches and persistent fatigue

HISTORY OF PRESENT ILLNESS

Mr. Doe, 46 y.o., reports headaches

Occurs throughout the day

Located on the right side

Stopped blood pressure medication last month

PAST MEDICAL HISTORY

Hypertension

Type 2 diabetes

Obesity

ASSESSMENT

Possible sleep apnea or uncontrolled blood pressure

fatigue and headaches

Send to

NUANCE

SOLUTIONSINDUSTRIESUPPORT

STOREBLOG

Healthcare AI solutions & services

Clinical solutions

Diagnostic solutions

Patient engagement solutions

Revenue integrity solutions

Care settings

Resources

Support

Contact us

DAX Copilot

Automatically document care with DAX Copilot

Improve clinician and patient satisfaction, operational efficiencies, and financial outcomes with DAX Copilot. This AI-powered ambient solution automatically documents patient encounters accurately and efficiently at the point of care with immediate note delivery.

Awards

Unmatched outcomes

Features

ROI resources

Video case studies

Featured resources

Natural Language Processing (NLP)- State of the Art

- Things to consider
 - Variability of resources
 - Ethical issues
 - Algorithmic bias
 - Issues of validity and reliability

How is the
diagnostic process
capturing the patient
experience?

Its not!

Thank you

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