

SMART CLINICAL SUPPORT: A UNIQUE APPROACH TO HEALTHCARE SUPPORT IN BANGLADESH

Presented by

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INTRODUCTION

Smart Clinical Support: Consultation, Medication management

Prescribing Errors: Major public health problem in Bangladesh

DDIs: Alters drug effectiveness or increase risks

Types of Interactions: Drug-food, Drug-disease, Drug-drug

Tech Solution:

- **FHIR & HAPI FHIR** for digital records
- Supports **EHRs, mobile health, analytics health data**
- **Django, React.JS** for web application



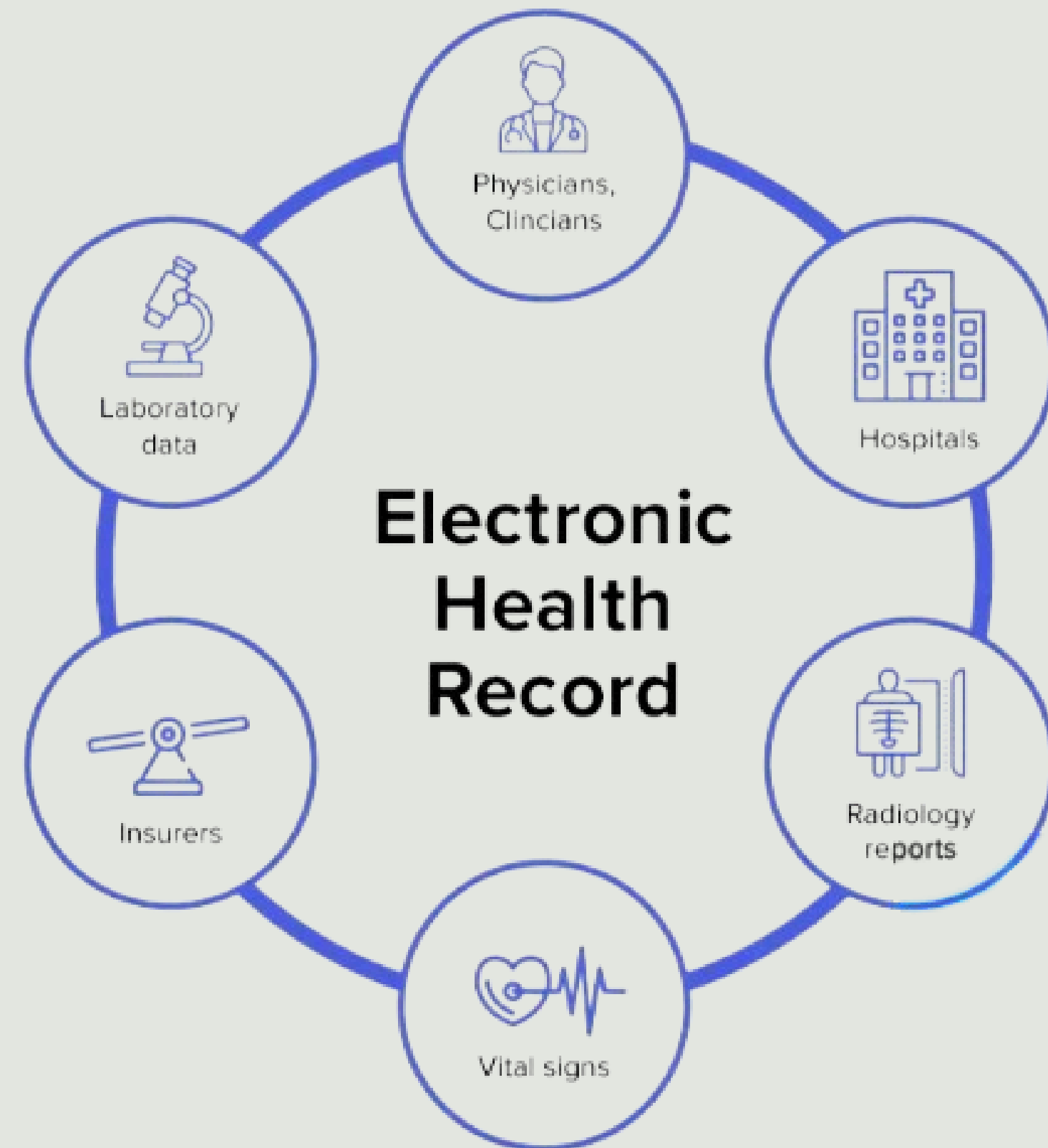
ELECTRONIC HEALTH RECORDS (EHR)

What is EHR?

- Digital version of a patient's medical history.
- Stores medical history, diagnoses, medications, treatment plans, and lab results.

Benefits of EHR:

- Improves accessibility and reduces paperwork.
- Enhances coordination among healthcare providers.
- Increases patient safety by reducing errors.





DEMO GRAPHICS



VITALS



MEDICAL HISTORY



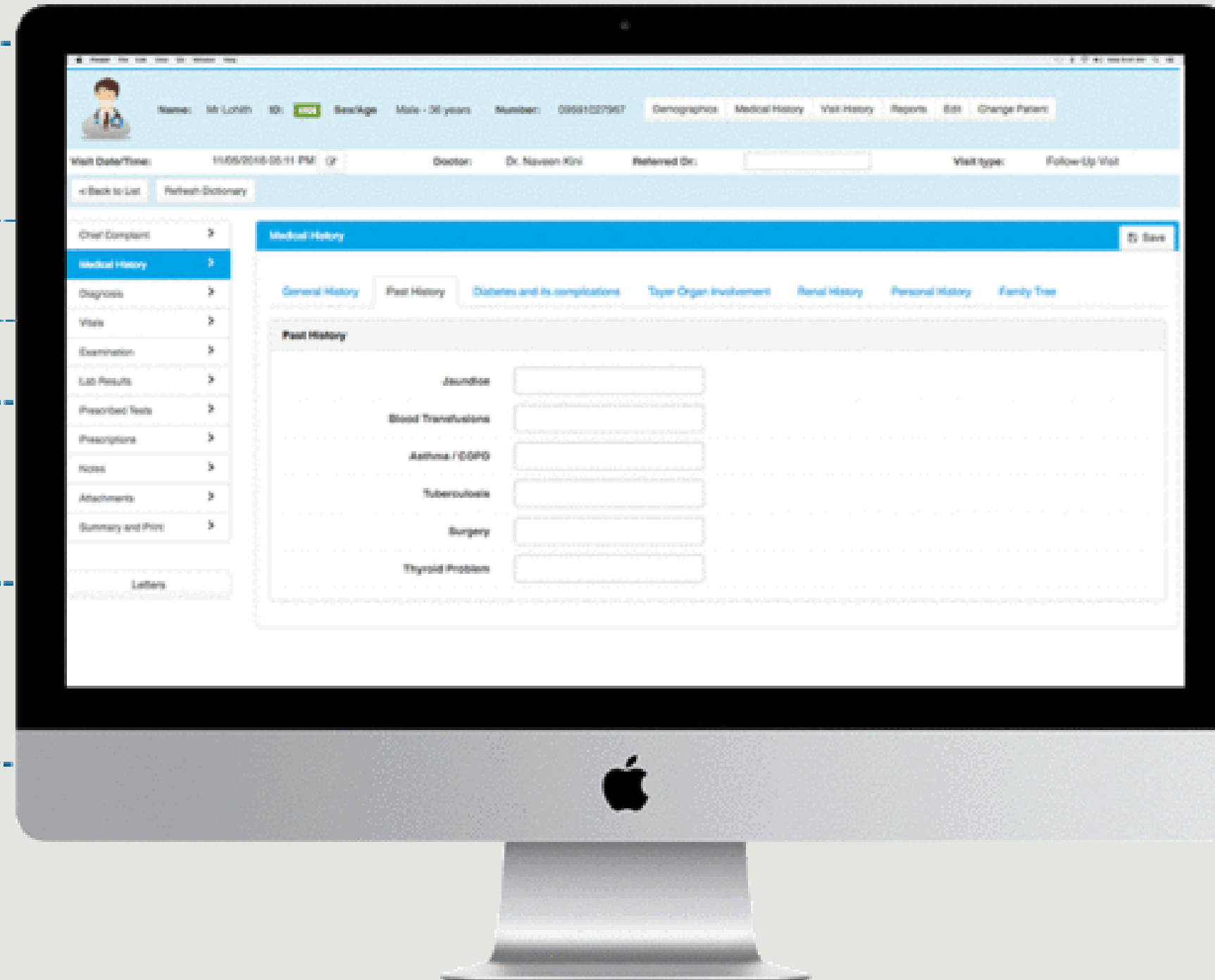
HISTORY OF ILLNESS



COMPLAINTS



TEST RESULTS



DIAGNOSIS



MEDICATIONS



CHARTS & GRAPHS



HEALTH SNAPSHOTS



PRESCRIPTION



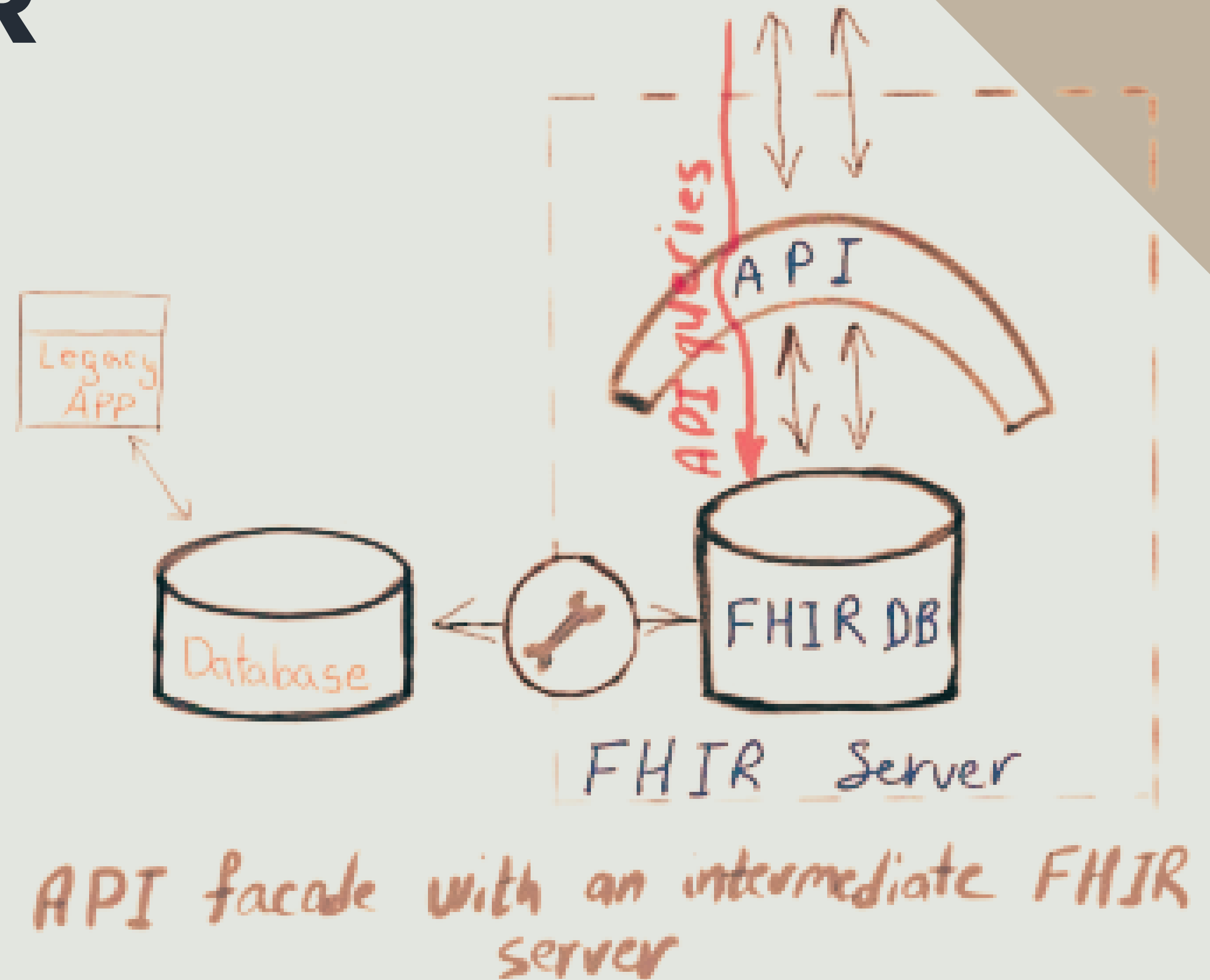
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FHIR

FAST HEALTHCARE
INTEROPERABILITY RESOURCES
(FHIR) IS A STANDARD FOR
SHARING HEALTHCARE DATA
BETWEEN SYSTEMS. FHIR IS USED
TO EXCHANGE ELECTRONIC
HEALTH RECORDS (EHRS)
BETWEEN PROVIDERS AND
ORGANIZATIONS.



HAPI FHIR





Questionnaires



Lab Results



Medications



Patients

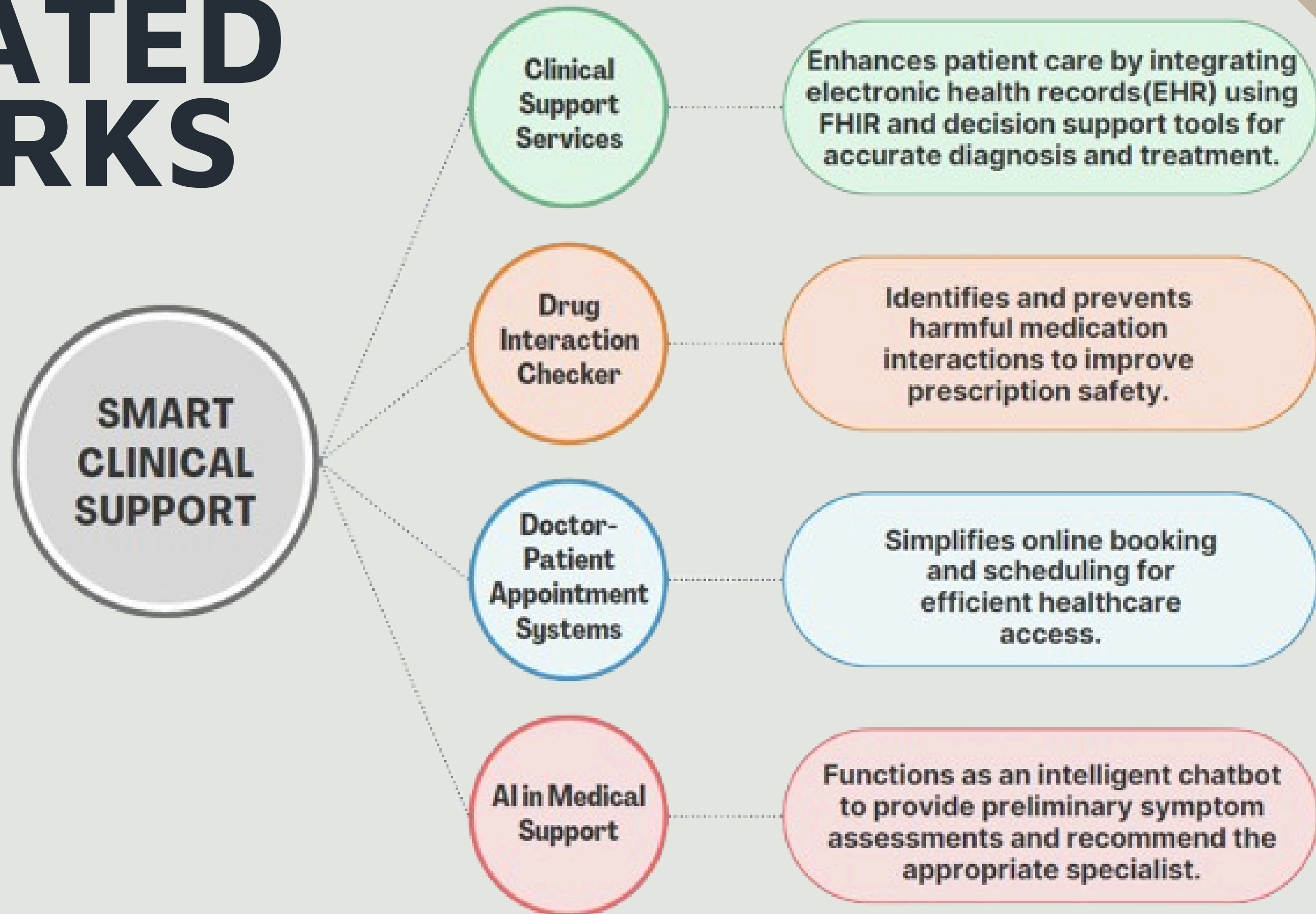


Providers

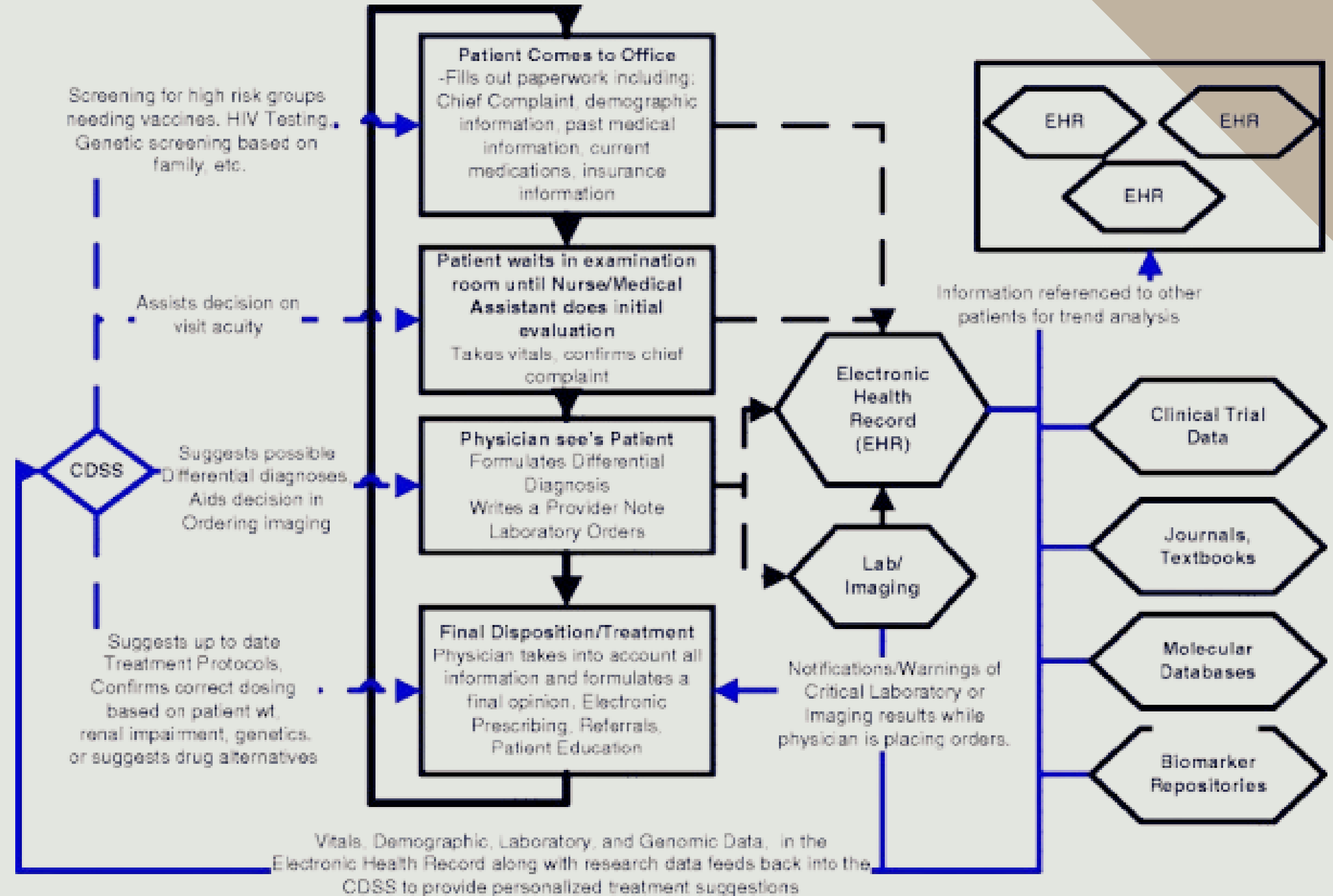


Decision/Action

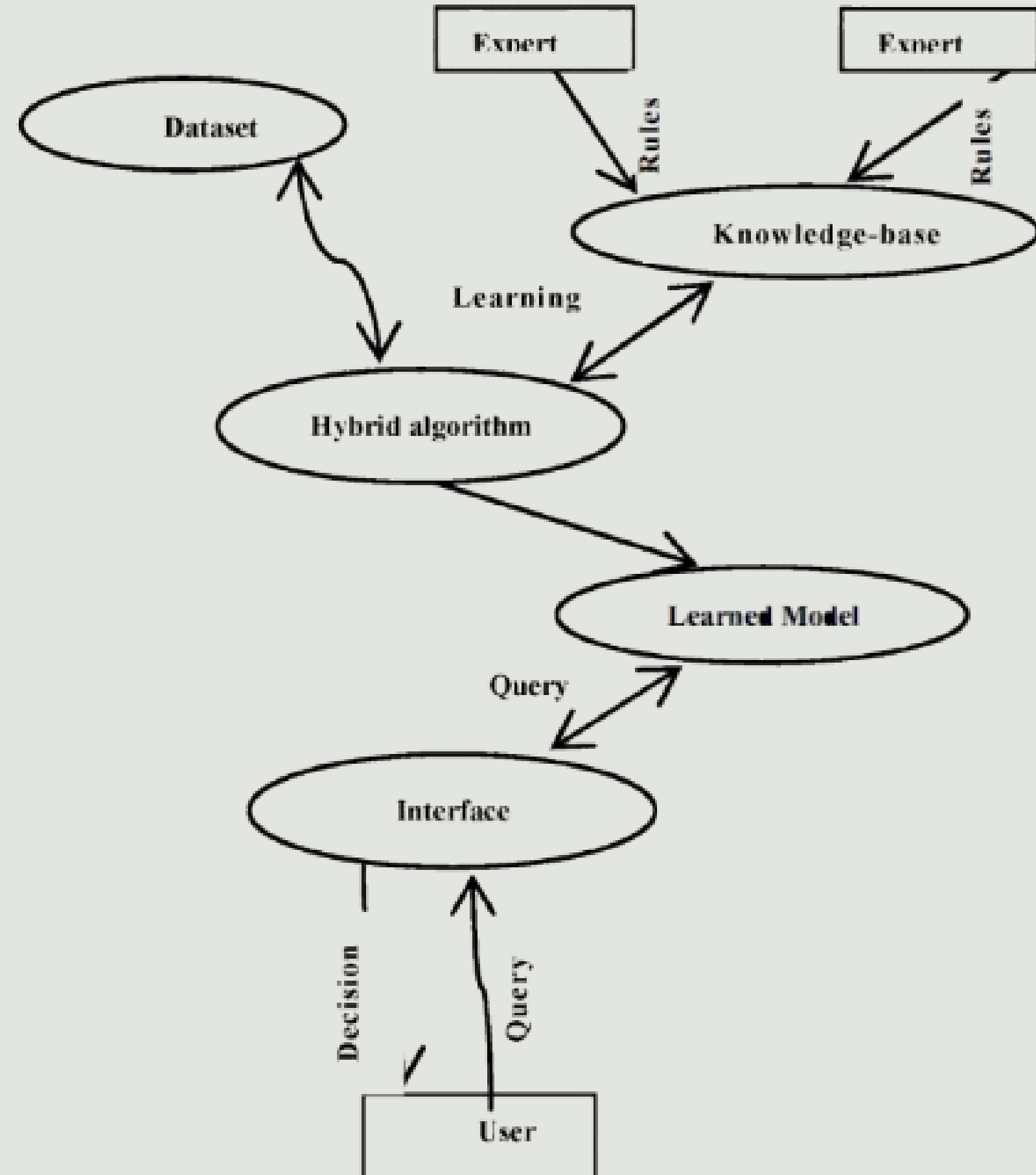
RELATED WORKS



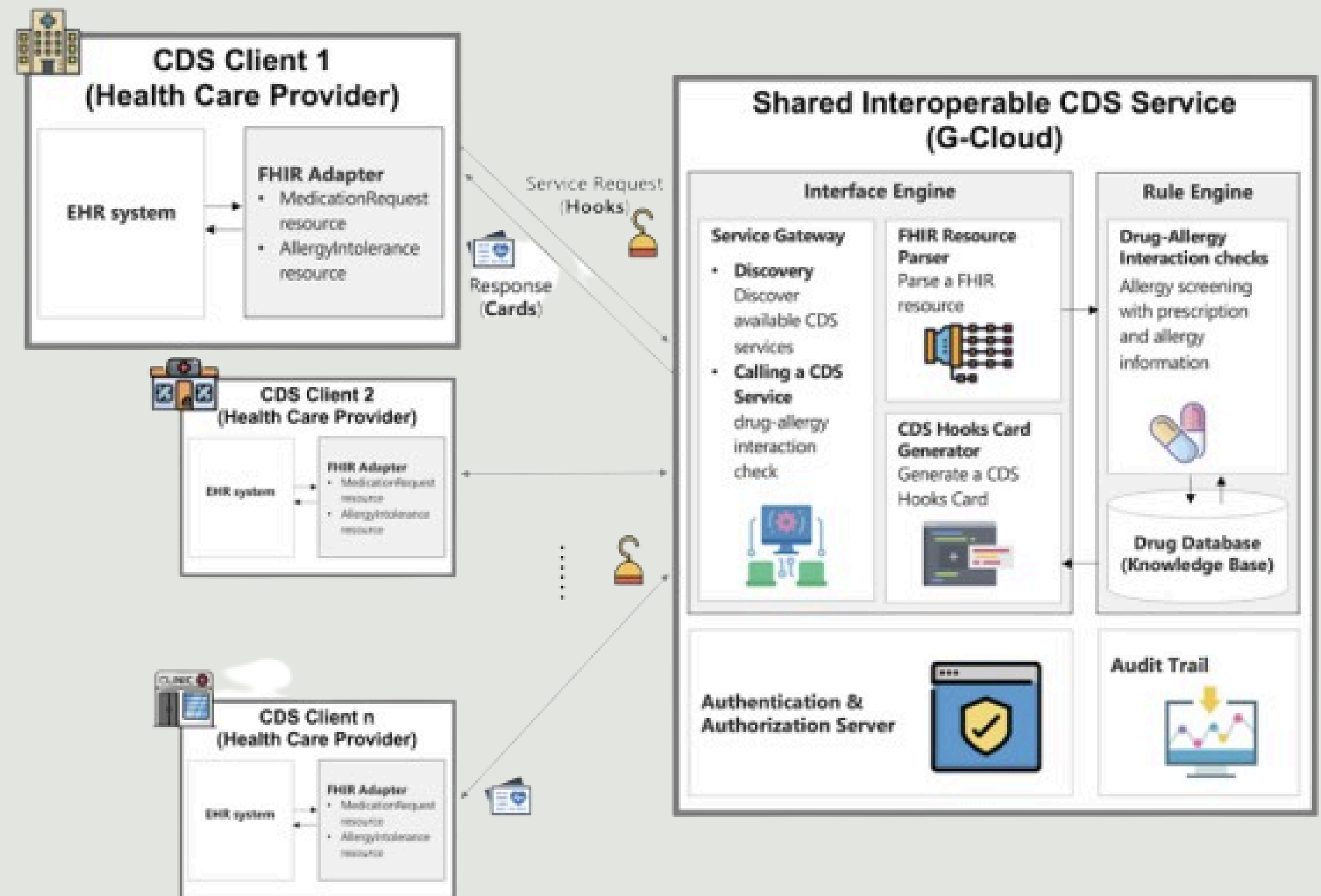
- **CLINICAL
DECISION
SUPPORT
SYSTEMS
FOR
IMPROVING
DIAGNOSTIC
ACCURACY
AND
ACHIEVING
PRECISION
MEDICINE**



- **IQBAL ET AL. PROPOSED A HYBRID CLINICAL DECISION SUPPORT SYSTEM (CDSS)**
- **HYBRID ALGORITHM, FOCL, DEMONSTRATES IMPROVED PERFORMANCE OVER TRADITIONAL METHODS BY COMBINING EXPERT KNOWLEDGE WITH MACHINE LEARNING CAPABILITIES, ALLOWING FOR A MORE ROBUST DECISION-MAKING PROCESS.**



- JUNG ET AL. FOCUSED ON THE DEVELOPMENT AND DEPLOYMENT OF A SHARED INTEROPERABLE CDS SERVICE FOR DRUG-ALLERGY INTERACTION (DAI) CHECKS IN KOREA
- UTILIZED THE CDS HOOKS AND THE HL7 FHIR STANDARD AND LAUNCHED ON G-CLOUD, RESULTING IN OVER ONE MILLION DAI CHECKS AND A WARNING RATE OF 3.32%

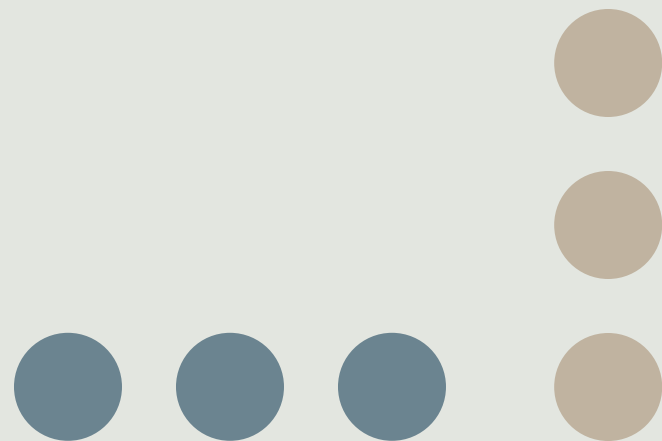


PROBLEM STATEMENT

- **Medication Errors:** Incorrect prescriptions, dosages, or harmful interactions in Bangladesh
- **Access to Patient Data:** Accessing and sharing patient data among clinics and healthcare providers.
- **Remote Healthcare Access:** Long travel, wait times, and lack of professionals

RESEARCH QUESTION

- **Can a Smart Clinical Support system prevent medication errors among healthcare professionals in Bangladesh?**
- **How can a Smart Clinical Support system provide a standardized way for multiple clinics to access and share patient data?**



METHODOLOGY

System Development: Web app for support service and drug interaction checks

Data Management:

- EHRs (FHIR), doctor schedules, drug interaction database

Data Processing:

- FHIR compliance, data cleaning, and normalization

Features:

- Clinical support, drug interaction alerts, appointment management

Testing:

- Unit testing, Security testing

Deployment:

- Limited deployment, monitoring, updates

CONCLUSION

- **Improves Healthcare:** Reduces errors, enhances data sharing, and expands access.
- **Ensures Safety:** Secure records, reminders, and better communication.
- **Future Focus:** Strengthen security, compatibility, and usability.



Thank You