TITLE:
HOSPITALS HEALTH-CARE DATA

TEAM ID: PNT2022TMID29950

WORK DONE BY:

CHIDANANDA.M

VIGNESH.A

DINESH.S

SRINATH.S

FACULTY MENTOR :
SINDHUJA S

ABSTRACT

- Clinical data abstraction is **the process of identifying and capturing key administrative and clinical data elements**. The purpose of abstraction includes the collection of data related to administrative coding functions, quality improvement, patient registry functions and clinical research.

INTRODUCTION

Health data is any data "related to health conditions, reproductive outcomes, causes of death, and quality of life"[1] for an individual or population. Health data includes clinical metrics along with environmental, socioeconomic, and behavioral information pertinent to health and wellness. A plurality of health data are collected and used when individuals interact with health care systems. This data, collected by health care providers, typically includes a record of services received, conditions of those services, and clinical outcomes or information concerning those services . Historically, most health data has been sourced from this framework. The advent of eHealth and advances in health information technology, however, have expanded the collection and use of health data—but have also engendered new security, privacy, and ethical concerns. The increasing collection and use of health data by patients is a major component of digital health.

OBJECTIVE

Social Impact

• Access to primary healthcare, Less Casualty. Business

Model/Impact

• Pharmacy companies will sell their medical products to generate more revenue.

• Insurance companies will sell their health policies to needed people.

Recommended Technology Stack

• Cognos Analytics, Tableau, Data Analysis with Python, Power-BI, etc. References

LITERATURE SURVEY

S.NO	AUTHOR	TITLE	CONTENT	YEAR
1	NADA Y. PHILIP 1 , (Senior Member, IEEE), MANZOOR	A Data Analytics Suite for Exploratory Predictive, and Visual Analysis of Type 2 Diabetes	The analytics presented explores advanced data analysis techniques, which are potential tools for clinicians in decision-making that can contribute to better management of T2D.	2022
2	HAMZEH KHAZAEI1	Health Informatics for Neonatal Intensive Care Units: An Analytical Modeling Perspective	Using the proposed analytical model, the prediction of amount of storage, memory, and computation power required for the system. Capacity planning and tradeoff analysis would be more accurate and systematic by applying the proposed analytical model .	2015
3	CAIFENG ZHANG1	Optimizing the Electronic Health Records Through Big Data Analytics: A Knowledge-Based View	This study contributes to the existing digital health and big data literature by exploring the proper adaptation of analytical tools to EHRs from the different knowledge mode in order to shape meaningful use of big data analytics with EHRs.	2019

S.NO	AUTHOR	TITLE	CONTENT	YEAR
4	EUN KYONG SHIN AND ARASH SHABAN-NEJAD	Urban Decay and Pediatric Asthma Prevalence in Memphis, Tennessee: Urban Data Integration for Efficient Population Health Surveillance	Improving public health decision making, the health issue should be approached with a more holistic view with taking into account environmental, residential, and social conditions. Integrating multiple data sources helps us not only discover the hidden links between quality of housing and childhood asthma in an urban community but also provide more efficient health surveillance guidelines to identify the population at risk.	2018
5	FATIMA KHALIQUE	A Framework for Public Health Monitoring, Analytics and Research	The proposed framework in its adoption provides a very effective platform for generating alerts and alarms along with providing statistics for better planning of healthcare-related issues at national, district, or at any level of administrative hierarchy. It is applicable to any country even when there is no standard EHR and has hospitals working in silos with limited digitalization.	2019
6	Lu Yan, Weihong Huang , 2021	Data-Enabled Digestive Medicine: A New Big Data Analytics Platform	A typical use case of integrated analysis based on electronic medical records and colonoscopy data was presented and discussed, the analytic report on risk factors of colorectal diseases shows a reasonable recommendation about the age when people should start to screen the colorectal cancer, which could be very useful to individual and group health management.	2021

S.NO	AUTHOR	TITLE	CONTENT	YEAR
7	GASPARD HARERIMANA	Deep Learning for Electronic Health Records Analytics	Explains an intuitive apporach for possible use cases of deep learning with EHR. Techniques that can be applied by health informatics professionals by giving technical intuitions and blue prints on how each clinical task can be approached by a deep learning algorithm.	2019
8	CARLOS TORRES.	Healthcare Event and Activity Logging.	A fully working prototype system is developed, tested in a mock ICU room and then deployed in two ICU rooms at a community hospital, thus offering unique capabilities for data gathering and analytics. The proposed method achieves a role identification accuracy of 84% and a backtracking role identification of 79% for obscured roles using interaction and appearance features on real ICU data.	2018
9	AYMAN D. ALAHMAR	SNOMED CT-Based Standardized e-Clinical Pathways for Enabling Big Data Analytics in Healthcare	Modern healthcare processes produce large amounts of data that have great potential for health policymakers and data science researchers. Considerable portion of such data is not captured in electronic format and hidden inside the paperwork. A major source of missing data in healthcare is paper-based clinical pathways (CPs). CPs are healthcare plans that detail the interventions for the treatment of patients, and thus are the primary source for healthcare data.	2020.

S.NO	AUTHOR	TITLE	CONTENT	YEAR
10	VIJAY HUDDAR	Predicting Complications in Critical Care Using Heterogeneous Clinical Data	Digitized clinical data in electronic medical records can be effectively used to develop machine learning models to identify patients at risk of complications early and provide prioritized care to prevent complications.Clinical data from heterogeneous sources within hospitals pose significant modeling challenges.	2016
11	MIN CHEN	Disease Prediction by Machine Learning Over Big Data From Healthcare Communities	Machine learning algorithms for effective prediction of chronic disease outbreak in disease-frequent communities was discussed . We experiment the modified prediction models over real-life hospital data collected . To overcome the difficulty of incomplete data, we use a latent factor model to reconstruct the missing data.	2017
12	ISRAA MOHAMED	Machine Learning Algorithms for COPD Patients Readmission Prediction: A Data Analytics Approach	Predicting the readmission of COPD (Chronic Obstructive Pulmonary Disease) patients through the deployment of machine learning algorithms. Area Under Curve (AUC) and ACCuracy (ACC)Then, the importance of the variables for each outcome was explicitly identified, and defined important variables have then been differentiated. The highest accuracy in predicting readmission .with 91% ACC.	,2022

Architectures

Machine Learning Algorithms for COPD Patients Readmission Prediction: A Data Analytics Approach

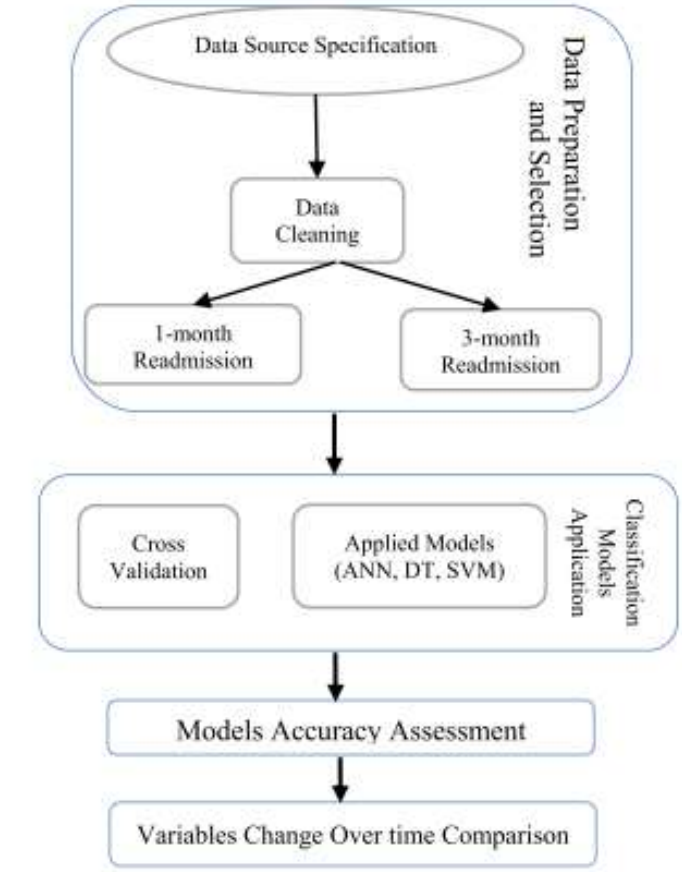
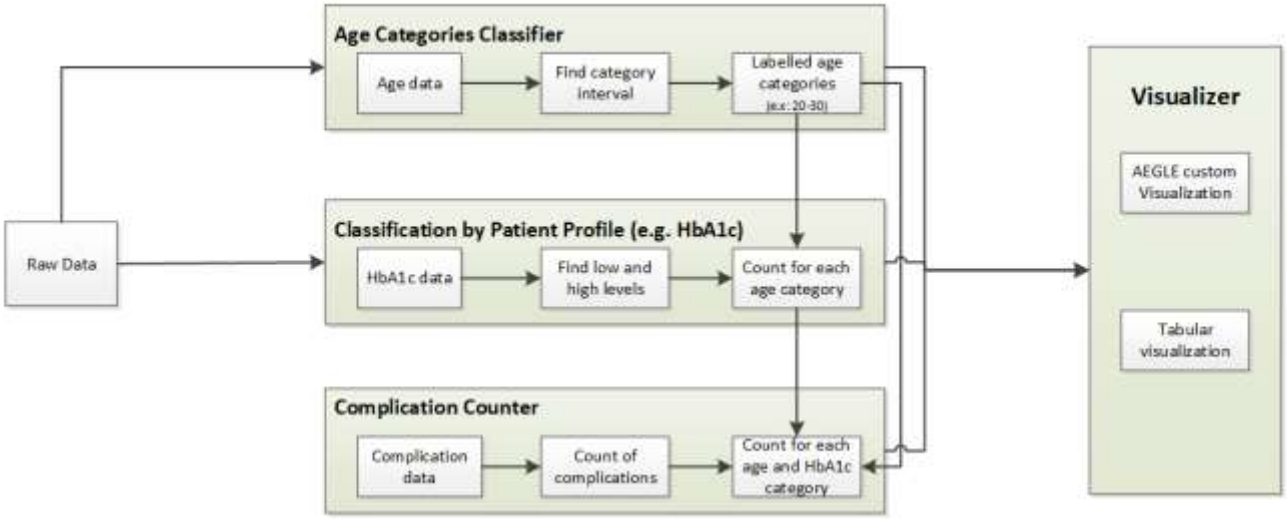


FIGURE 1. **Methodology general framework.**

A Data Analytics Suite for Exploratory Predictive, and Visual Analysis of Type 2 Diabetes



Patient Profile Classifier Workflow. A two-tier classification is performed by the analytics to associate patient demographics with patient markers and T2D related complication.

Health Informatics for Neonatal Intensive Care Units: An Analytical Modeling Perspective

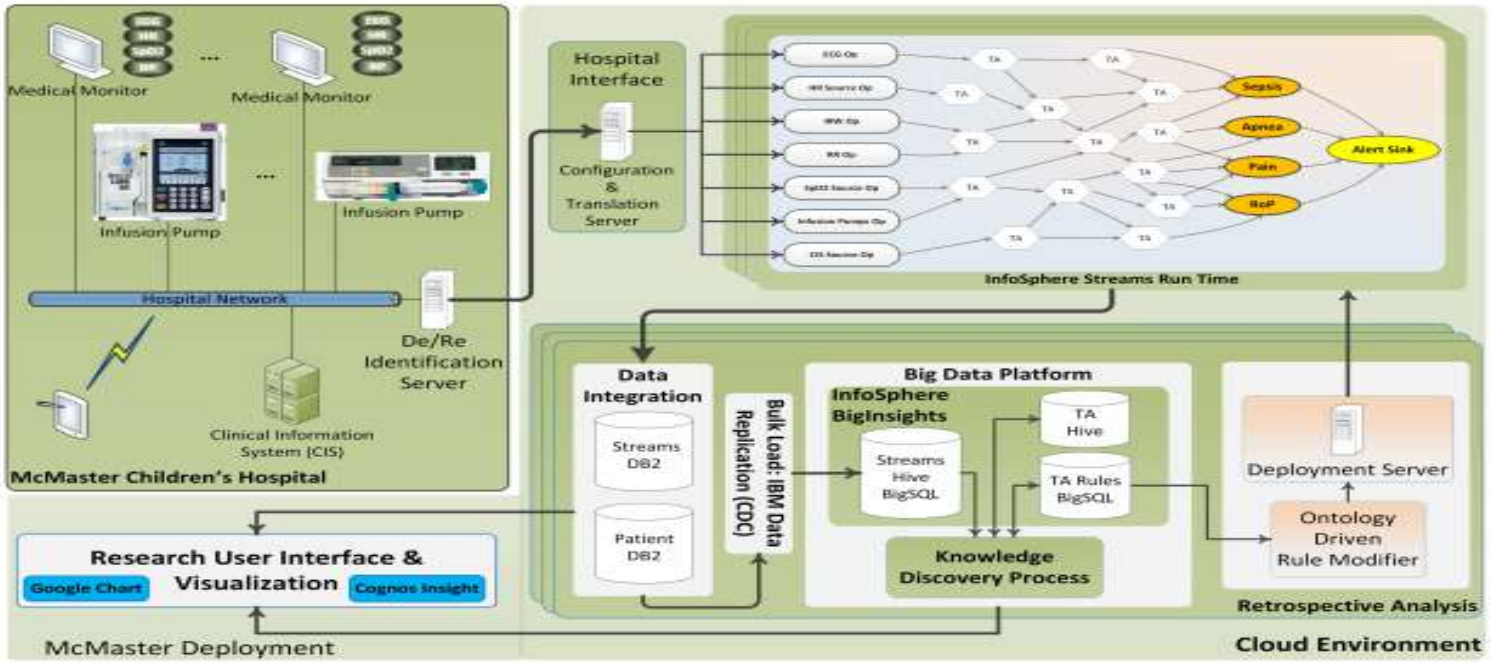


FIGURE 1. The high level architecture of Artemis Cloud. The hospital environment on the top left; realtime processing platform on top right; Data archival, data mining and knowledge discovery on bottom right; and visualization of live and historic data on the bottom left.

A Framework for Public Health Monitoring, Analytics and Research

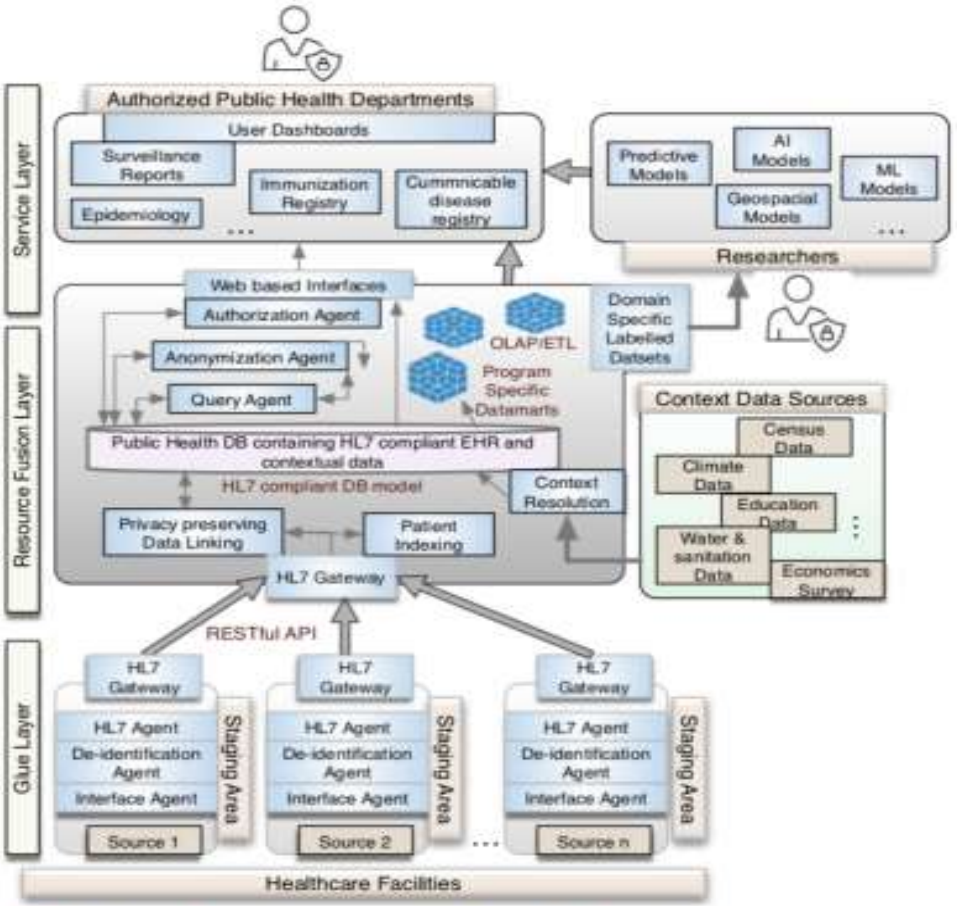


FIGURE 2. The overview of proposed layered national framework for public health informatics and research modeling. The glue layer is implemented at primary and secondary level as well as in private hospitals participating in the program through adequate regulations. The resource fusion layer and service layer are implemented at tertiary and federal level of Pakistan health care delivery system.

THANK YOU