



ROLE OF AI IN DECISION MAKING: WILL IT REPLACE THE MULTI-DISCIPLINARY TEAM

DR ANJALI KULKARNI

Objective of CDSS

“Standardise Care and Experience - Standardised and Patient centric pathways, improve quality in delivery of care and patient outcomes”

Definitions

Clinical Guidelines

Recommendations on how to diagnose and treat a medical condition. They are mainly written for doctors, also for nurses and other health care professionals. These are in the form of paper, website link, PDF Document etc.

E.g., <https://tmc.gov.in/ncg/index.php/guidelines/draft-guidelines-2020>

Clinical Pathways

Tools used to guide evidence based healthcare. Their aim is to translate Clinical Guidelines recommendations into clinical processes of care using Technology

Guidelines + Pathways
= **Value Amplification**
@ Point-of-Care

Clinical Decision Support System -CDSS - Overview

CDSS

Knowledge Based System

The knowledge based clinical decision support system contains rules mostly in the form of IF-Then statements.

Rule Based
(Clinical Pathways Automation)

Non Knowledge Based System

The Non knowledge based clinical decision support system uses Machine Learning Models

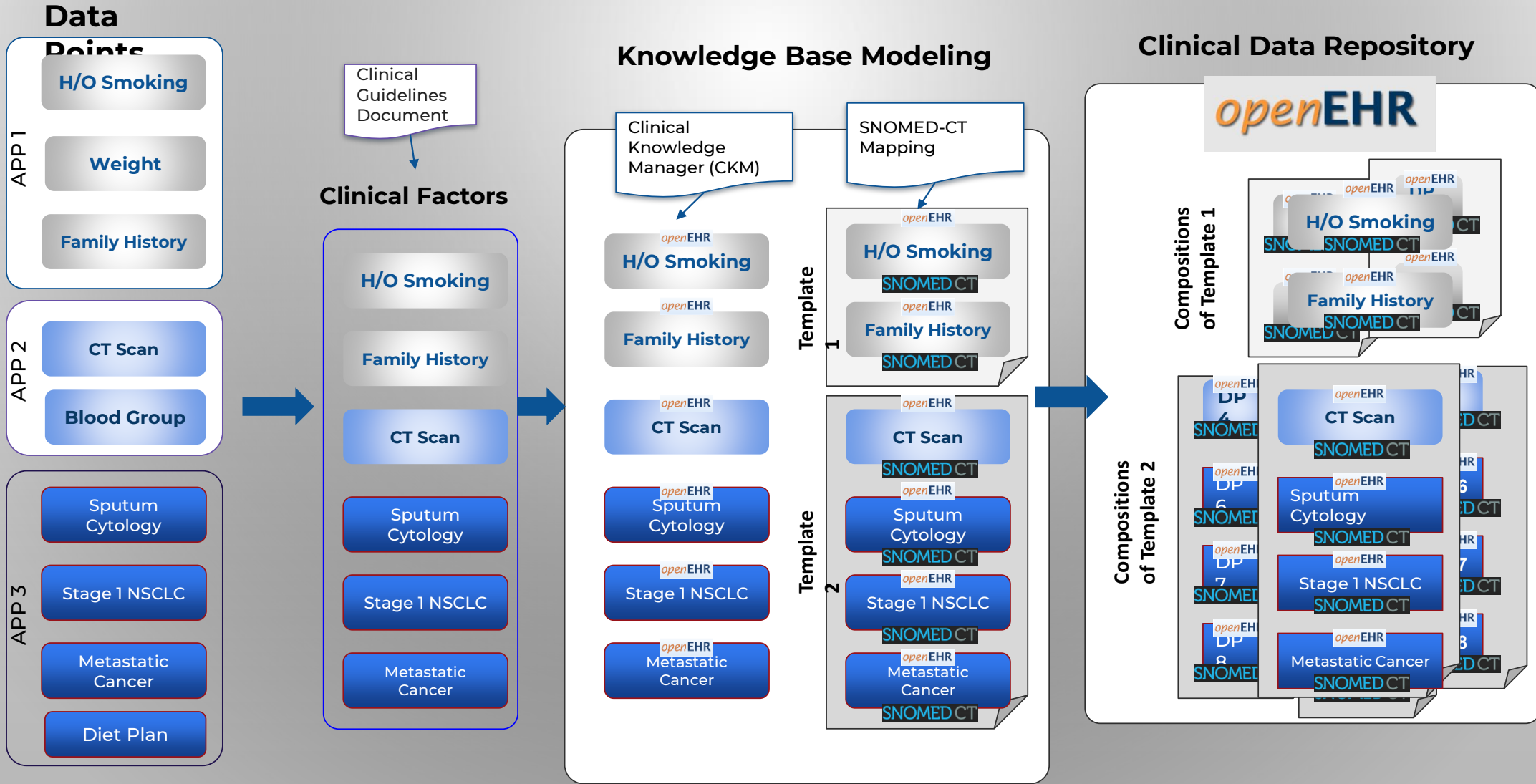
AI/ML Based Risk Scoring, Treatment options

- CDSS will offer
 - Comprehensive care plans
 - Actionable treatment pathways
 - Alerts, recommendations, &
 - Treatment outcome measures
- CDSS- EMR integration with context and semantics based approach for distributed , standardised care
- May Provides an opportunity to clinicians to evaluate recommendations from perspective of different clinical pathways like ESMO, ASCO, NCCN etc

Steps in Clinical Pathways Automation

PROCESS	ARTEFACTS	OWNER
Clinical Guidelines Creation	Clinical Care Guidelines - PDFs / workflow diagram	Clinician
Ontology and Semantic Based Modeling	Clinical Information Models (Archetypes) Standard Terminologies (SNOMED -CT, ICD-10)	Clinician
Rules Authoring	GDL2 Rules List GDL2 Rules Validation	Clinician
Computer Interpretable Guideline Creation	Clinical Information Model Drools Rules List	Software Programmer
Rules Testing	Unit tests for Drools Rules (using Drool Workbench)	Software Programmer
Rules Integration with Care Plan	Services used for integrating Drool Rules with Clinical Information Models(Patient Data)	Software Programmer

Clinical Factors - Modeling to Persistence



NON KNOWLEDGE BASED CDS

AI AND ML MODELS

- IMAGING AI BASED CDS
 - Radiology
 - Histopathology
- PREDICTIVE MODELS
 - Disease remission or progression based on surgery and treatment data

GENERATIVE AI BASED

- CLINICAL NOTES SUMMARIZATION - HELPS IN QUICKER, 360 DEGREE DECISION MAKING
- Q AND A BOT - PRIVATE GPT - PROVIDES INFORMATION BASED ON LATEST RESULTS FROM CLINICAL TRIALS, RESEARCH ARTICLES AND GUIDELINES

Will AI replace MDT / Tumour Board ?

HOW ARE HUMAN SUPERIOR?



CREATIVITY

Will AI be able to write poetry that conveys emotions connected to words like us? Or can it produce art that is flawed but still touches your soul? A machine can be trained to behave like you, but it cannot be trained to develop a personality.



LOGICAL REASONING

Computers are extremely fast at processing logic and data, but they can't create things or break new ground in knowledge as we can. Their only advantage is that they have no biological constraints. You can train the machine if you know all of the rules ahead of time.



JUDGMENT

Humans have a much higher order of thought when it comes to judgment. This distinguishes between what is right and what is wrong. When we use judgment, we use extremely complex information processing and simulations that no machine can ever do.



INTUITIVENESS

Humans use their evolving intelligence and are creative, imaginative and intuitive, which allows us to run simulations of all kinds in our brains in a matter of seconds.



COMMON SENSE

Humans constantly use all five of our senses. No robot will ever be able to replicate all of these senses. AI will only be useful for information processing.



