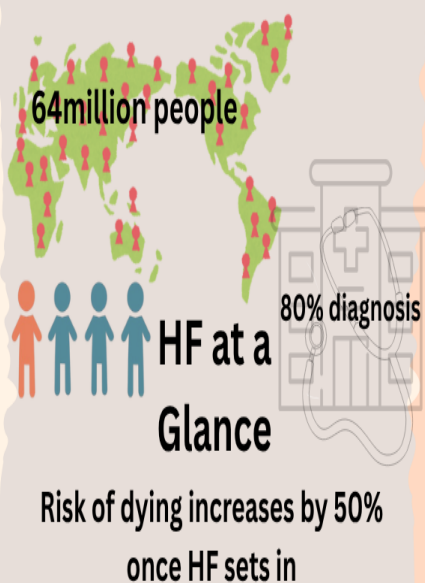


DEEP LEARNING IN PRIMARY CARE HEALTH RECORDS TO PREDICT INCIDENT HEART FAILURE FROM TEMPORAL AND CONTEXTUAL REPRESENTATIONS OF ANTECEDENT RISK FACTORS

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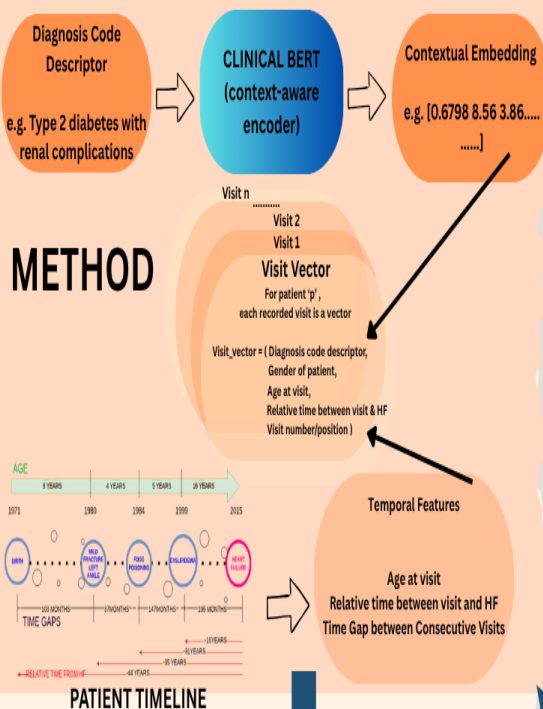
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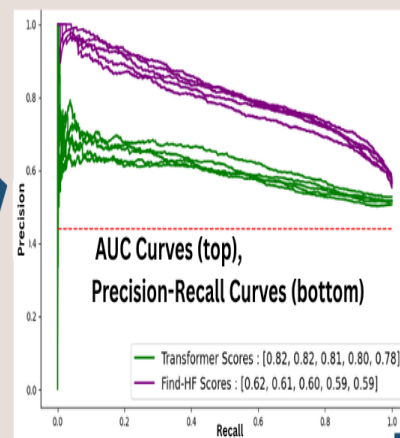
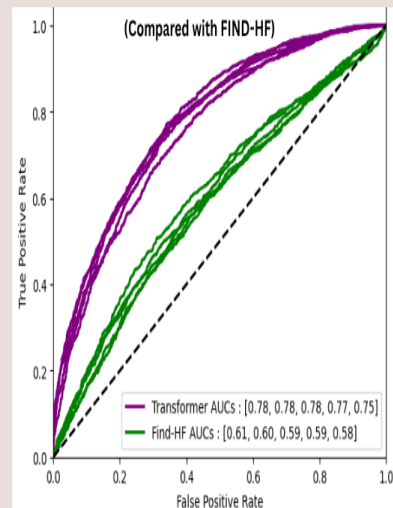
DATA

Cohort: ~20,000 patients from CPRD Aurum
Baseline Characteristics of Cases (with HF) and Controls (without HF) in the Selected Cohort

Condition, n(%)	Overall	Controls	Cases
n	18043	10271	7772
Atrial Fibrillation	2824 (15.7)	2306 (22.5)	518 (6.7)
Cholesterol screening	12231 (67.8)	7031 (68.5)	5200 (66.9)
Congestive Heart Dis.	2124 (11.8)	2124 (20.7)	0 (0.0)
Diabetes	2877 (15.9)	1997 (19.4)	880 (11.3)
Hypertension	7304 (40.5)	4875 (47.5)	2429 (31.3)
Ischaemic Heart Dis.	4617 (25.6)	3592 (35.0)	1025 (13.2)
Myocardial Infarction	1785 (9.9)	1546 (15.1)	239 (3.1)
Serum creatinine tests	13060 (72.4)	7676 (74.7)	5384 (69.3)
Smoking Status	13301 (73.7)	8191 (79.7)	5110 (65.7)
T2D (Exclusion Codes)	38 (0.2)	28 (0.3)	10 (0.1)
T2D (Hba1C Test Codes)	6439 (35.7)	3662 (35.7)	2777 (35.7)
Blood Pressure	389 (2.2)	235 (2.3)	154 (2.0)
BNP	609 (3.4)	417 (4.1)	192 (2.5)
Echo	132 (0.7)	118 (1.1)	14 (0.2)
Gender - F	8474 (47.0)	4814 (46.9)	3660 (47.1)
Gender - M	9569 (53.0)	5457 (53.1)	4112 (52.9)
Age (years), Mean (SD)	76.4 (11.9)	76.1 (12.6)	76.8 (10.8)



RESULTS



CONCLUSIONS

- Contextual and temporal information is critical
- evaluation with out-of-sample data is needed for further validation