Hypertension Data Warehouse

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- **Date:** 19 November 2024

Contents

Hypertension Data Warehouse

2010-2024/12 (15 years)

Documentation on cohort identification procedure can be found here. This process has been peer-reviewed and published here.

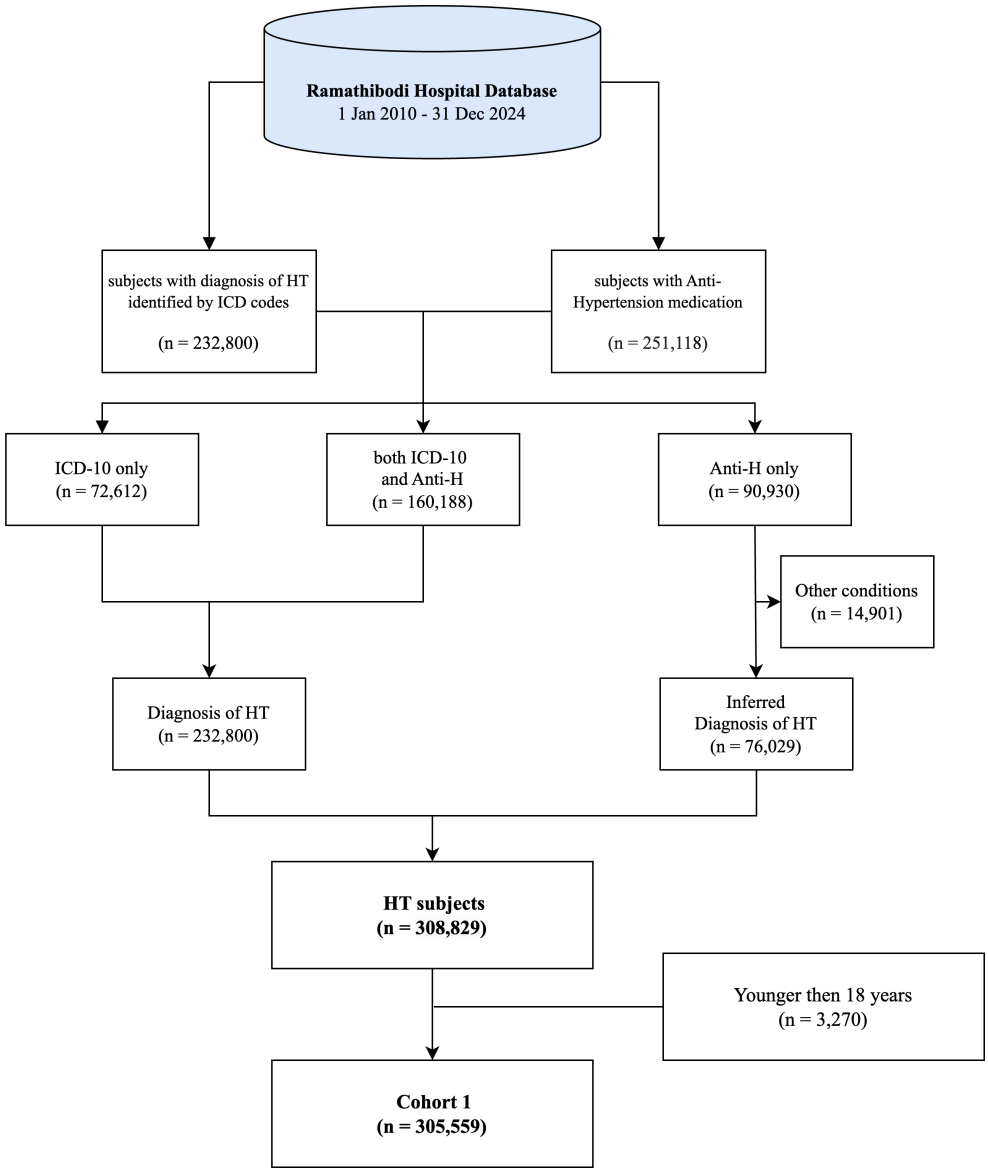
Data Flow

ICD codes for diagnosis of Hypertension (HT) and Anti-Hypertension Medication

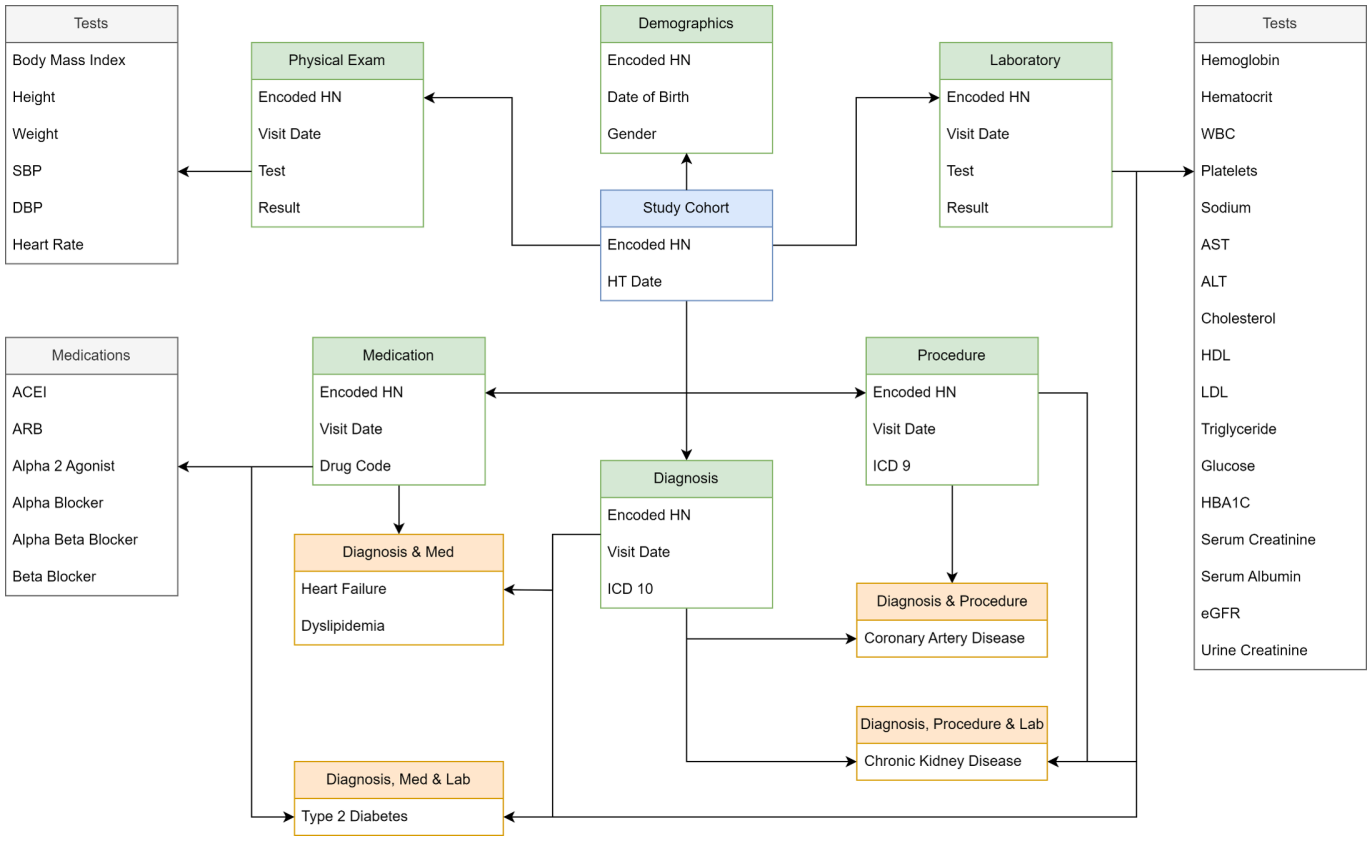
ICD-10 for HT
'I10', 'I11', 'I12', 'I13', 'I15'

Anti-Hypertensive Medication
'Angiontensin-converting Enzyme Inhibitor', 'Angiotensin II Receptor Blocker', 'Calcium Channel Blocker', 'Alpha Agonist', 'Alpha Blocker', 'Alpha Beta Blocker', 'Beta Blocker', 'Diuretic', 'Hydralazine', 'Minoxidil', 'Neprilysin Inhibitor', 'Renin Inhibitor'

Other Conditions
Angiontensin-converting Enzyme Inhibitor: Heart Failure; Angiotensin II Receptor Blocker: Heart Failure; Calcium Channel Blocker: Arrhythmia (non-Dihydropyridine); Alpha Agonist: Hypertension in Pregnancy; Alpha Blocker: Benign Prostatic Hyperplasia; Beta Blocker: Atrial Fibrillation; Beta Blocker: Hyperthyroidism; K-sparing Diuretics: Cirrhosis, Heart Failure, (Female; Acne, Female pattern hair loss/androgenetic alopecia); Loop Diuretics: Heart Failure; Neprilysin Inhibitor: Heart Failure



Entity Relationship Diagram



Variables

The complete list of variables can be found here.

Demographics	Physical Examination	Comorbidity	Laboratory		Medication		Death
Age	Heart rate	Hypertension	Fasting plasma glucose	Renal eGFR	Angiotensin converting enzyme inhibitors	Ergot alkaloids	Death
Gender	Temperature	Type 2 diabetes mellitus	Cholesterol	Serum Creatinine	Angiotensin receptor blockers	Hydralazine	Main cause of death
Nationality	Oxygen saturation	Atrial fibrillation	High-density lipoprotein	Triglyceride	Calcium channel blockers (dihydropyridine)	Minoxidil	Cause of death
Ethnic	Body mass index	Dyslipidaemia	Low-density lipoprotein		Calcium channel blockers (non dihydropyridine)	Neprilysin inhibitor	
Province	Height	Chronic kidney disease	Uric acid		Alpha 2 agonists	Renin inhibitor	
Insurance scheme	Body weight	Coronary artery disease	Urine albumin		Alpha beta blockers	Reserpine	
Occupation	Systolic blood pressure	Stroke	Urine creatinine		Alpha blockers	Statin	
Martial status	Diastolic blood pressure	Heart failure	Urine protein (random urine)		Beta blockers		
	Respiratory rate		Urine protein (24 hours)		Diuretics		

Hypertension cohort update

Data Warehouse Timeline

ETL timeline

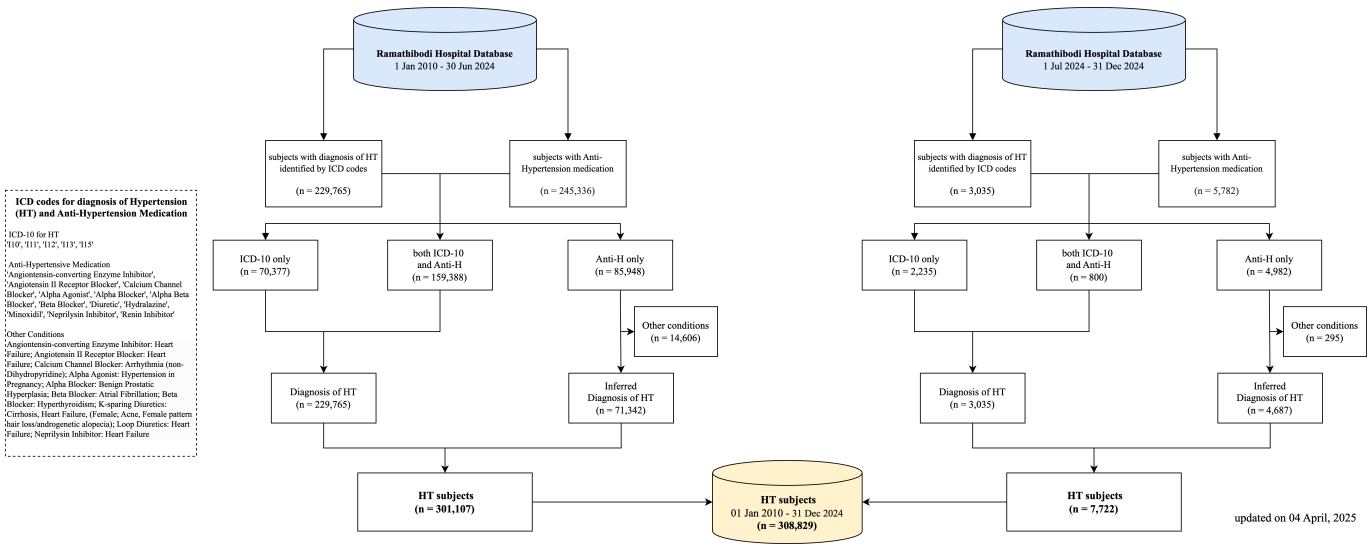
With our latest data extraction (ETL) in December 2024,

- New case update to December 2024 (Bi-Annually)

- Follow up visits update to December 2024 (Quarterly).

Update Summary

Cohort Update



Hypertension Cohort (15 years)

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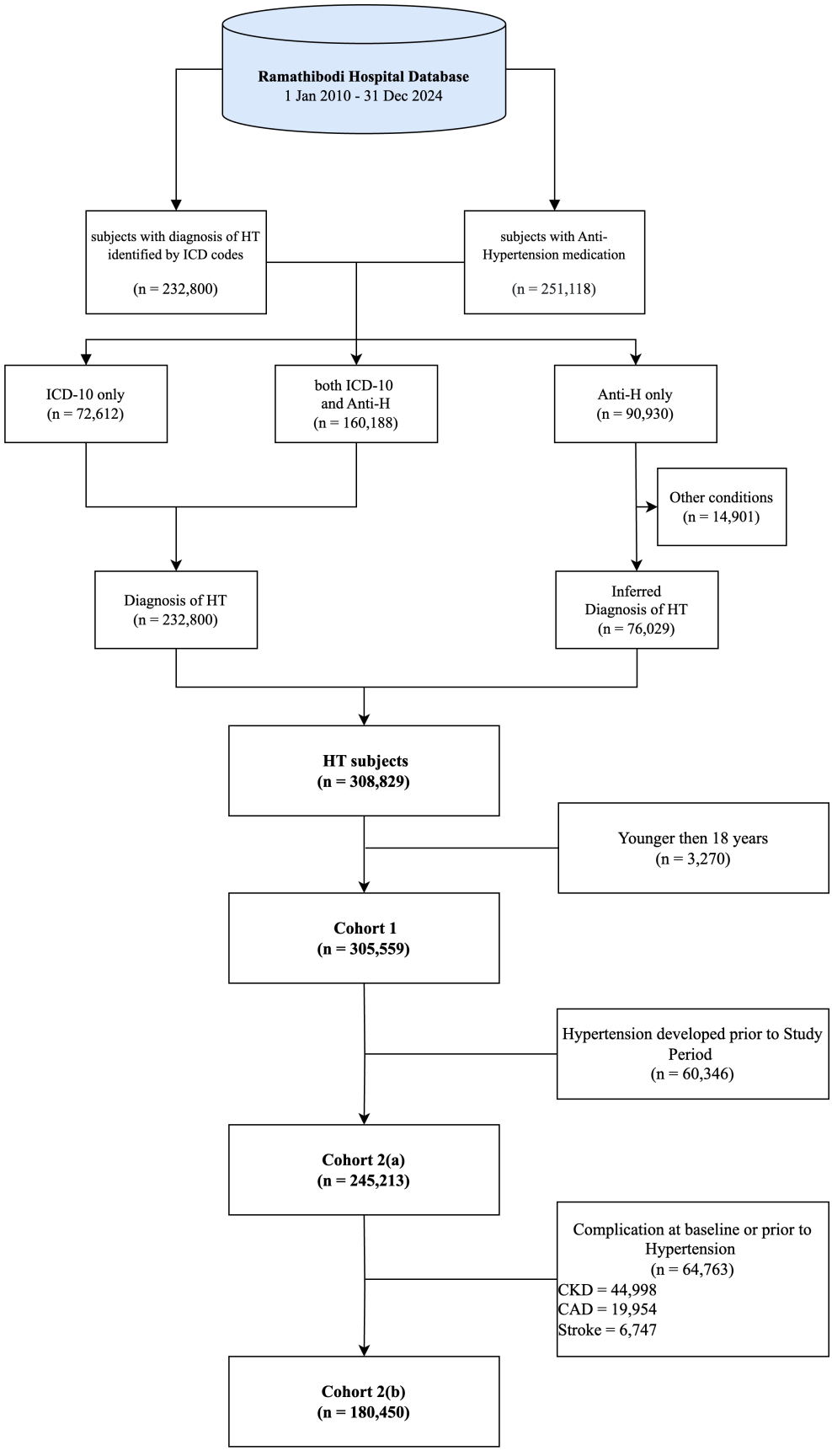

updated on 21 April, 2025

Supplementary

Codes

The Python notebook for cohort identification can be found at in codes folder here.

> [!NOTE]
> As of March 5, 2024, the data preprocessing pipeline is updated to use Polars instead of Pandas, due to its multi-thread processing prowess.

Maplist

The Map list for medications and other indications can be found at in maplist folder here.

Data Request

More details regarding this and other cohorts can be found here at CEB-RAMA-MU. Data request can be made on the same webpage.

Usage

Publications

- Teza, H., Boonmanunt, S., Unwanatham, N., Thadanipon, K., Limpijankit, T., Pattanaprateep, O., Pattanateepapon, A., McKay, G. J., Attia, J., & Thakkinstian, A. (2023). Evaluation of transitions from early hypertension to hypertensive chronic kidney disease, coronary artery disease, stroke and mortality: a Thai real-world data cohort. *Frontiers in Cardiovascular Medicine, 10*. https://doi.org/10.3389/fcvm.2023.1170010

Conferences

- Teza, H., Pattanaprateep, O., Boonmanunt, S., Thadanipon, K., Limpijankit, T., Pattanateepapon, A., Unwanatham, N., & Thakkinstian, A. (2023). Hypertension and Its Associated Complications: A Thai Real-World Clinical Cohort. Poster session presented at the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 2023, Boston, MA.

Competitions

- Thailand Health AI Datathon 2023