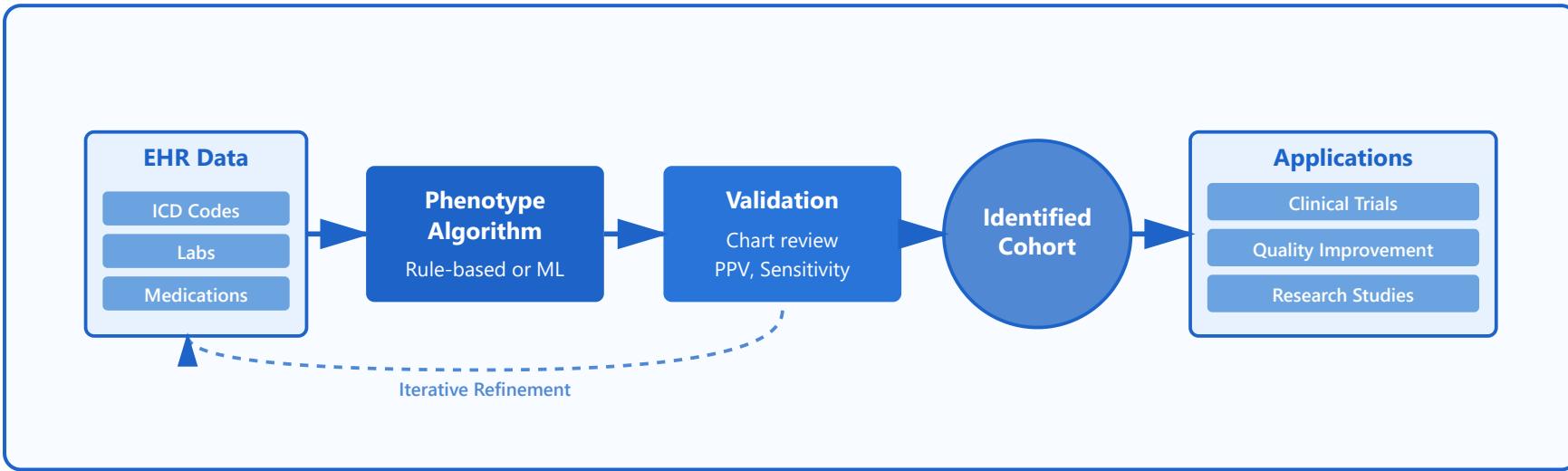


Clinical Phenotyping



Computable Phenotypes

- Standardized disease definitions
- ICD codes + labs + meds
- Temporal logic criteria
- Inclusion/exclusion rules



Rule-Based Methods

- Boolean logic (AND, OR, NOT)
- Diagnosis code combinations
- Lab value thresholds
- Medication orders



Machine Learning Approaches

- Supervised classification



Validation Strategies

- Chart review (gold standard)

- Feature engineering from EHR
 - Random forests, deep learning
 - Semi-supervised learning
- PPV, NPV, sensitivity, specificity
 - Cross-institutional validation
 - Phenotype libraries (PheKB, eMERGE)