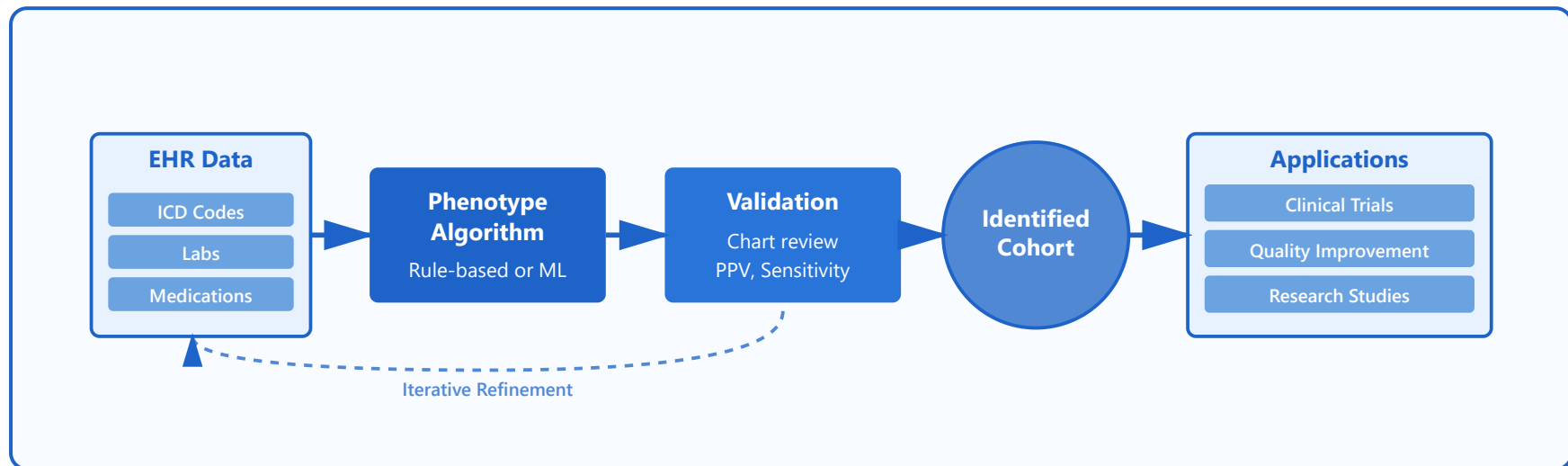


# Clinical Phenotyping



## 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)