CASE WESTERN RESERVE UNIVERSITY
School of Medicine

Master of Public Health Program

Emergency Department versus Primary Care Utilization Post Insurance Enrollment
A Retrospective Cohort Study

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Cleveland Clinic

Background

Most studies include participants who are already enrolled in the hospital system and have an Electronic Health Record (EHR). However, EHR data is not representative of true neighborhood population health. Although insurance coverage enables healthcare utilization, understanding visit patterns after insurance enrollment is important because the type of service and time to care may vary between individuals.

- **Health insurance improves access to healthcare.** Disparities in healthcare utilization exist despite insurance coverage.
- **Medicaid increases use of preventive services.** There is a negative correlation between income level and preventable ER visits.
- **Connecting newly insured individuals to PC and educating them about their plan** can improve neighborhood health.

Knowledge gap: How do individuals with different insurance providers access care once enrolled?

Research question
Does the cumulative incidence of first healthcare utilization through the ED versus PC differ by insurance type?
Hypothesis
Individuals with Medicaid will have a higher cumulative incidence of ED utilization and a lower cumulative incidence of PC utilization compared to individuals with commercial insurance.

Learning Objectives

1. Designing a retrospective study design on healthcare utilization.
2. Learning about data analysis and population health research.
3. Collaborating with researchers to answer gaps in our understanding of healthcare utilization by insurance type.

Methods

Study Design: Retrospective cohort study examining healthcare utilization patterns.

Study Population: Individuals in Merative MarketScan database
- > 300 million individuals across 50 states
- Data from > 450 suppliers (commercial insurance, Medicaid, Medicare) is collected when an individual enrolls in insurance plan
- Allows us to study first-visit-after-enrollment utilization patterns

Study Sample: Adults ≥ 18 years old in MarketScan multi-state Medicaid and commercial insurance databases from January 2022 to December 2024.

Inclusion Criteria: Single insurance provider for study duration and insurance coverage for ≥ 6 months in a row.

Potential Confounders: Individuals with Medicaid and private insurance differ by age, comorbidities, SES, geographic location, prior healthcare access etc. Adjust for available confounders in regression model.

Data analysis: Time-to-event (survival) analysis with competing risks
- Examine patterns of initial healthcare utilization by insurance type
- Outcomes of interest are mutually exclusive
- Simultaneously model each event type over time

A: ED visit first = event of interest
B: PC visit first = competing event
C: No visit = censoring

Censored if: No visits (LTFU/death); loss insurance prior to first visit.

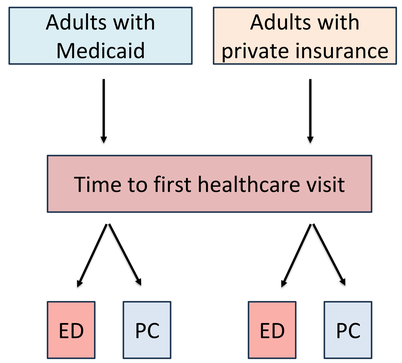


Figure 1: Retrospective cohort study design

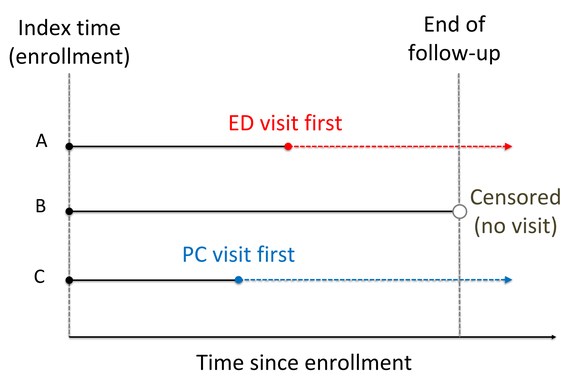


Figure 2: Participant timeline for survival analysis

Anticipated Results

At 1 year	ED first	PC first	No visits
Medicaid	50%	35%	15%
Private	15%	75%	10%

Table 1: Hypothetical distribution of first healthcare utilization within one year of insurance enrollment by insurance type.
Anticipated proportions of Medicaid and privately insured individuals who had their first healthcare encounter in the emergency department (ED) or primary care (PC), or with no visits within one year of enrollment.

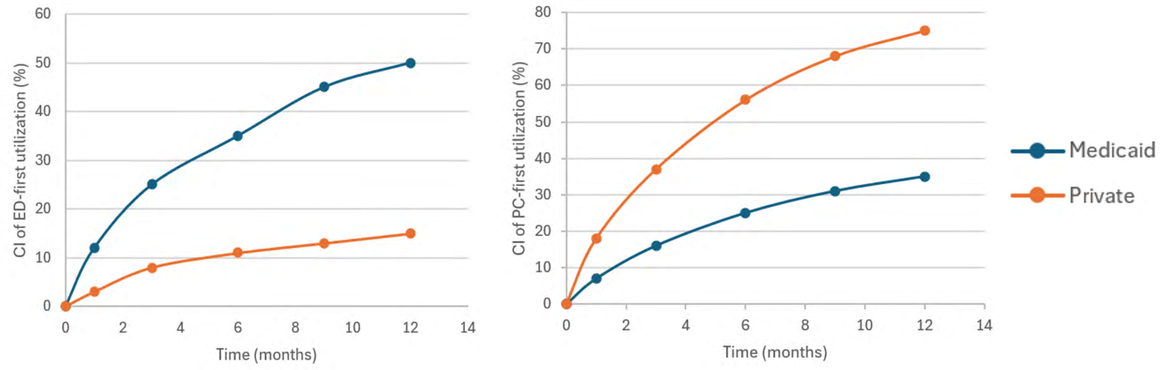


Figure 3: Cumulative incidence (CI) of first emergency department (ED) and primary care (PC) utilization post-insurance enrollment, stratified by insurance type. Adjusted cause-specific hazard ratio will be calculated using a Cox regression model to quantify the association between insurance type and first healthcare utilization.

Activities and Deliverables

- Weekly meetings with mentors and collaborators to design the study.
- Poster presentation at CWRU Graduate and Medical Student Research Day 2026.
- Oral presentation at 2026 Clinical Science Research Day (Cleveland Clinic Lerner College of Medicine).
- Currently learning how to use a cloud database to start the analysis.
- Collaborating with team members on next steps.

Lessons Learned

- Designing a research study takes time and is a team effort.
- It is worth spending time properly designing a study as it affects the interpretation and generalizability.
- Learned advanced survival modeling methods, such as addressing competing events.
- Population health research has potential to inform clinical practice and improve neighborhood health.

Public Health Implications

1. **Clinical impact:** Studying healthcare utilization allows us to understand patients' needs and ways to direct care.
2. **Economical impact:** Coordinating care to new patients, reducing unnecessary burden and cost to patients and insurance providers.
3. **Epidemiological impact:** Understanding health utilization patterns at a population level can help us better model neighborhood health.

Acknowledgments

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Devoted to Hope, Health, and Humanity