Source of Admission and Access to non-ED care: Evidence from Pediatric Patients Hospitalized for Asthma and Bronchitis in Maryland.

(Preliminary—Do not cite)
Comments and suggestions welcome

Rajiv Sharma
Department of Economics
Portland State University
sharmar@pdx.edu

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Joint work with:

- **Renu Gehring**
  Ace-Cube, LLP

- **Miron Stano**
  Department of Economics
  Oakland University

Outline

I. Background and motivation.
II. What is new in this research?
III. Summary of results.
IV. Analytical framework.
V. Results: Univariate analysis and logistic model.
VI. Conclusion.

Background:

- Equity in health and health care is an important policy issue—possibly the most important civil rights issue of our time.
- Differences in access key element of inequality in health care.
- Management adage– Can only control what we can measure.

Motivation:

- Focus on children: Improving access to children has been a federal and state priority.
- Focus on respiratory disease: Minority children- especially African Americans bear a disproportionate burden
- Focus on Inpatients: Severe need.
- Focus on Maryland: Racial Diversity.

Main Empirical issue:

- ED use is (imperfect) substitute for services in non-ED settings.

  => ED use has been viewed as an indicator of non-ED access.

- Problem: Differences in ED use can arise due to

  --Differences in non-ED Access

  --Differences in patient preferences

What is new in our research?

- Short-term changes can be used to analyze important aspects of the health care system.
- Employs a natural experiment—decrease in non-ED access during the weekend, and an increase in non-ED access at the beginning of the workweek—to evaluate if different racial groups have different degrees of access to non-ED care on weekdays.

Key innovation:

- On weekends—due to closure of many physicians' offices and outpatient clinics—the ED is a major conduit for access to health care for patients from all racial groups.
- If weekend access for two groups is similar, then the increase in non-ED access at the beginning of the workweek will have a greater impact on ED use of the group with better weekday access to non-ED care.

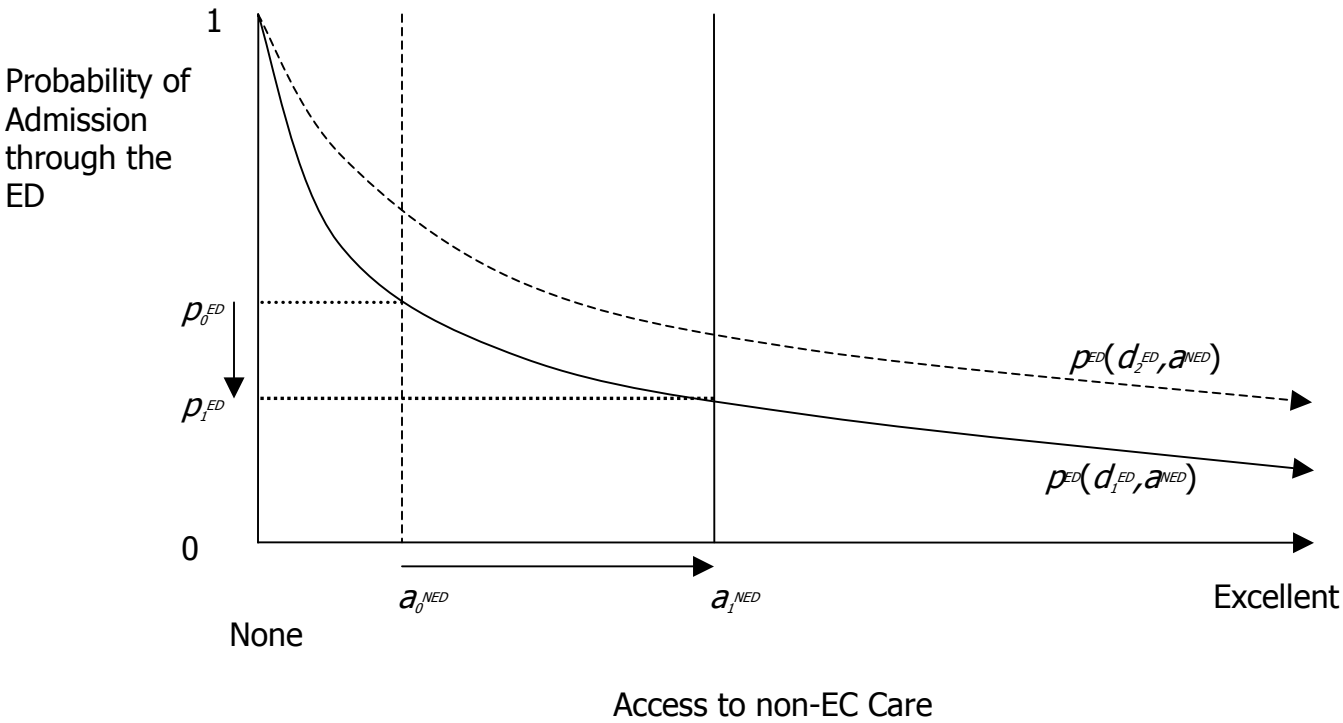
Summary of empirical results:

- Important differences in source of admission between racial groups and by insurance status.
- Onset of workweek affects patients from different racial groups differently.
- Evidence that African Americans have poorer weekday access to non-ED care than Whites. No statistically significant differences between other minority groups and Whites using our methods.
- Evidence that the rate of ED use for African Americans, Hispanics and Asians is more sensitive to changes in non-ED access than for Whites .

Model--Likelihood of admission through ED depends on:

- Desirability of ED care (patient's perspective):
  - health condition/treatment required.
  - patient's cost of ED treatment.
  - preference for ED vs. non-ED treatment.
- Access to non-ED care:
  - patient's cost of non-ED care.
  - does available care match patient's preferences?

Figure 1.—Access to non-ED care and probability of admission through the ED.



Group X has better weekday non-ED access if:

1. Decrease in probability of admission through ED due to the beginning of the workweek is larger for group X than for group Y.
2. Behavior of group Y patients is at least as responsive to changes in non-ED access as the behavior of patients from group X.
3. Group Y patients' access to non-ED care during the weekend is no better than that for patients from group X.

Data:

- Maryland inpatient data January 1999 to December 2002.
- Exclude transfers from other hospitals/health facilities. Restrict analysis to "routine" and ED admissions.
- 16,753 in DRG 98

  (Bronchitis and Asthma, age 0-17 years).

Results (Patient Characteristics): Race and Insurance

- Whites and African Americans in almost equal numbers (46% and 47%).

- Vast majority of patients had coverage from either Medicaid or private insurance:

  -Hispanics (65.3%) Medicaid.

  -African Americans (63.9%) Medicaid.

  - Proportion on Medicaid much lower for Whites, Asians and Native Americans.

Results (Patient Characteristics): ED and Weekend Admissions

Percent Admitted through ED

	On Weekends	On Weekdays
Whites	77.0%	54.2%
African Am.	88.6%	76.9%
Hispanics	87.9%	73.0%
Asians	79.3%	67.9%
Native Am.	100.0%	72.2%
Others	88.1%	73.3%

Results (Patient Characteristics): Age and Principal Diagnosis

- African Americans older (4.9 yrs) than patients from other groups.

  Whites (3.1), Hispanics (2.6)

  Asians (3.3), Native Americans (1.9).

- Asthma most common among African Americans.

  Acute Bronchiolitis most common among Whites and Native Americans.

Determinants of Admission through ED: (Logistic regression--Model)

- Estimate the Probability of admission through the ED (Dependent variable-ED admission).
- Independent variables:

  Age, Age squared, Sex, Race, LOS, Private insurance, Principal diagnosis, Number of diagnoses, Weekday admission.
- Interaction Effects:

  Race*Private insurance, Race*Weekday Admission, Private insurance*Weekday Admission

Determinants of Admission through ED: (Logistic regression results—Race & Insurance)

	Exp(Coeff.)	Exp(Coeff) 95% CI
Priv. Insur	0.644	0.533 – 0.779
Race (Ref—White)		
African Am.	1.784	1.458 – 2.183
Hispanics	2.384	1.346 – 4.223
Asians	2.453	0.883 – 6.816
Others	2.064	0.962 – 4.430

Determinants of Admission through ED: (Interaction effects—Race & Weekday Admission)

	Exp(Coeff.)	Exp(Coeff) 95% CI
Ref racial group- White		
Wkd*African Am.	1.362	1.115 – 1.665
Wkd*Hispanic	1.115	0.624 – 1.994
Wkd*Asian	1.661	0.781 – 3.533
Wkd*Other	1.209	0.576 – 2.536

⇒Compared to Whites, African Americans remain more likely to be admitted through the ED when the workweek begins (i.e., impact of workweek is smaller for African Americans than for Whites).

Determinants of Admission through ED: (Interaction effects—Race & Private Insurance)

	Exp(Coeff.)	Exp(Coeff) 95% CI
Ref racial group- White		
Priv. Ins*African Am.	0.817	0.700 – 0.954
Priv. Ins*Hispanic	0.579	0.372 – 0.899
Priv. Ins*Asian	0.380	0.159 – 0.908
Priv. Ins*Other	0.722	0.418 – 1.247

⇒Compared to its impact on Whites, private insurance leads to a greater reduction in likelihood of ED admission for African Americans and Hispanics.

Conclusion:

- Employ a natural experiment to evaluate racial differences in weekday access to non-ED care.
- Results indicate that African Americans have poorer weekday access to non-ED care than Whites.
- When compared to Whites, the care seeking behavior of African Americans and Hispanics appears to be more responsive to changes in access.
- ⇒ Improving access to minorities is key to addressing unequal treatment in the health care system.
- Quantifying differences in weekday access.