# Racial Disparities in Antibiotic Prescribing for Children

Jeffrey S Gerber, MD, PhD Children's Hospital of Philadelphia

University of Pennsylvania School of Medicine



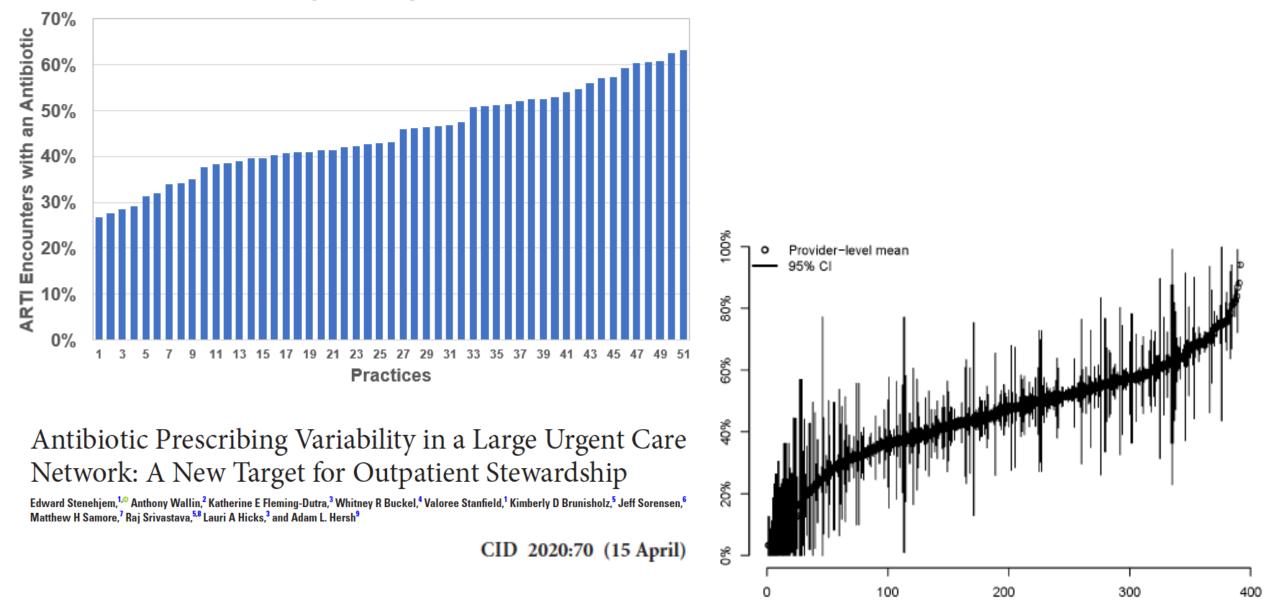


## Antibiotic use in children

- Antibiotics = most common medications prescribed to children
- Acute respiratory tract infections account for >70%
  - sometimes warrant antibiotics
    - ear, sinus, throat infections
  - never warrant antibiotics
    - colds, bronchiolitis, acute bronchitis
- About half are inappropriate
  - no drug, wrong drug, too many days



#### ARTI Diagnoses receiving Antibiotic Prescriptions, by Site



Provider

### Racial Differences in Antibiotic Prescribing by Primary Care Pediatricians

**AUTHORS:** Jeffrey S. Gerber, MD, PhD,<sup>a,b,c</sup> Priya A. Prasad, MPH,<sup>a,b</sup> A. Russell Localio, PhD,<sup>b,d,e</sup> Alexander G. Fiks, MD, MSCE,<sup>b,c,d,f</sup> Robert W. Grundmeier, MD,<sup>c,f,g</sup> Louis M. Bell, MD,<sup>a,b,c,f</sup> Richard C. Wasserman, MD,<sup>h</sup> David M. Rubin, MD, MSCE,<sup>c,d,e,f</sup> Ron Keren, MD, MPH,<sup>b,c,e,f</sup> and Theoklis E. Zaoutis, MD, MSCE<sup>a,b,c,e</sup>

- > 200,000 patients
- > 60,000 Black patients
- > 600,000 visits
- > 200 clinicians

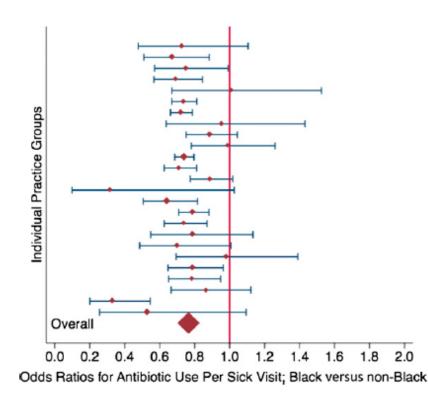


TABLE 2 Within-Clinician Antibiotic Prescribing Rate by Patient Race

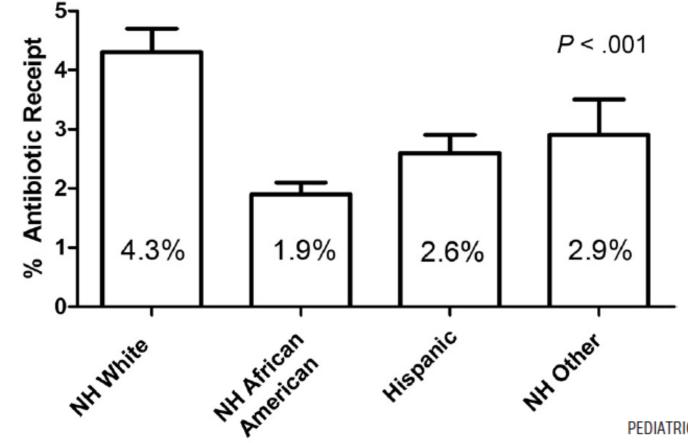
Antibiotic Prescribing <sup>a</sup> ( <i>n</i> ) <sup>b</sup>	OR, Black versus Nonblack (95% Cl)°	P Value	Standardized Probability % (95% Cl) <sup>d</sup>	
			Black	Nonblack
Overall (363049)	0.75 (0.72-0.77)	<.001	23.5 (22.5-24.5)	29.0 (28.1-30.0)
Broad-spectrum (81 056)	0.88 (0.82-0.93)	<.001	34.0 (31.5-36.5)	36.9 (34.8-39.0)
Broad-spectrum, AOM (37701)	0.75 (0.68-0.83)	<.001	31.7 (28.6-34.8)	37.8 (35.6-40.0)
Broad-spectrum, GAS (7964)	0.89 (0.61-1.32)	.567	7.5 (4.6-10.4)	8.3 (6.7-10.0)
Broad-spectrum, sinusitis (9863)	0.97 (0.84-1.11)	.661	44.0 (38.5-49.4)	44.7 (40.6-48.8)
Broad-spectrum, pneumonia (3038)	1.00 (0.71–1.40)	.953	17.2 (12.3–22.1)	17.1 (13.7–20.4)

#### TABLE 3 Within-Clinician Diagnosis Rate of Common Pediatric Conditions, by Patient Race

Diagnosis <sup>a</sup>	OR, Black versus Nonblack (95% Cl) <sup>b</sup>	<i>P</i> Value	Standardized Probability, % (95% CI)°	
	1 1		Black	Nonblack
AOM	0.79 (0.75-0.82)	<.001	8.7 (8.2–9.2)	10.7 (10.3–11.2)
Sinusitis	0.79 (0.73-0.86)	<.001	3.6 (3.1-4.0)	4.4 (4.1-4.8)
GAS pharyngitis	0.60 (0.55-0.66)	<.001	2.3 (2.1-2.5)	3.7 (3.5-3.8)
Pneumonia	1.0 (0.89-1.1)	.808	1.3 (1.1-1.4)	1.3 (1.1-1.4)
UTI	1.0 (0.93–1.1)	.725	1.7 (1.7-1.8)	1.7 (1.6-1.8)

### Racial and Ethnic Differences in Antibiotic Use for Viral Illness in Emergency Departments

Monika K. Goyal, MD, MSCE,<sup>a</sup> Tiffani J. Johnson, MD, MSc,<sup>b</sup> James M. Chamberlain, MD,<sup>a</sup> T. Charles Casper, PhD,<sup>c</sup> Timothy Simmons, MStat,<sup>c</sup> Evaline A. Alessandrini, MD, MSCE,<sup>d</sup> Lalit Bajaj, MD, MPH,<sup>e</sup> Robert W. Grundmeier, MD,<sup>b</sup> Jeffrey S. Gerber, MD, PhD, MSCE,<sup>b</sup> Scott A. Lorch, MD, MSCE,<sup>b</sup> Elizabeth R. Alpern, MD, MSCE,<sup>f</sup> for The Pediatric Care Applied Research Network (PECARN)



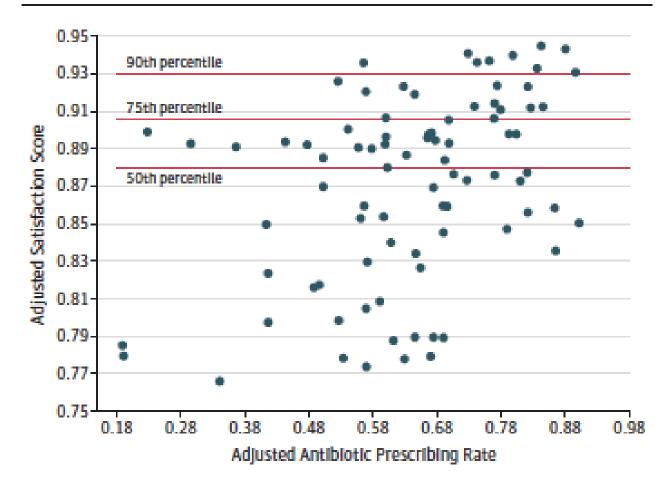
### Telemedicine

Virtual care should achieve:

- safety and effectiveness that is comparable to traditional care
- improve efficiency without increasing costs
- respect patient preferences and values without exacerbating health care disparities
- accessing virtual care requires internet access, a smartphone or computer, digital literacy, and health insurance

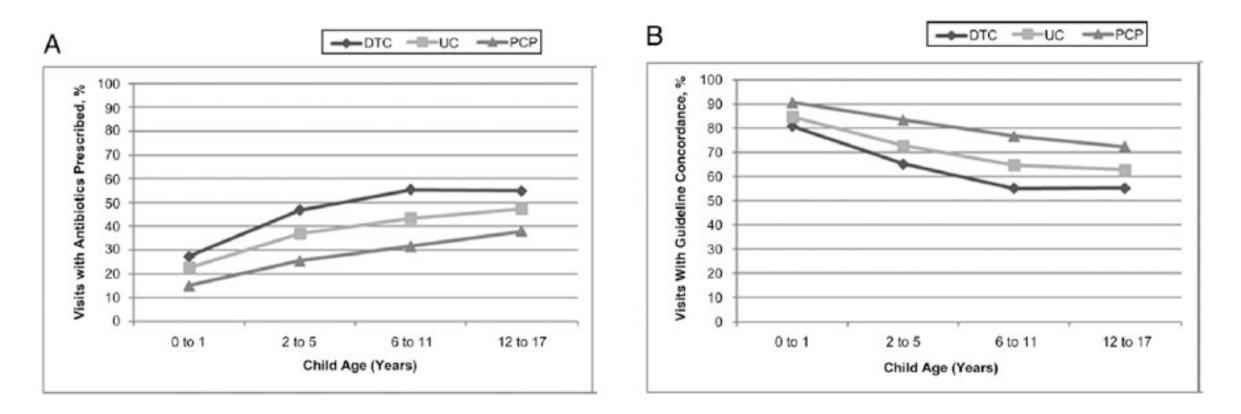
Association Between Antibiotic Prescribing for Respiratory Tract Infections and Patient Satisfaction in Direct-to-Consumer Telemedicine

> Figure. Association Between Antibiotic Prescribing for Respiratory Tract Infections and Satisfaction Scores, by Physician



### Antibiotic Prescribing During Pediatric Direct-to-Consumer Telemedicine Visits

Kristin N. Ray, MD, MS,<sup>a</sup> Zhuo Shi, BA,<sup>b</sup> Courtney A. Gidengil, MD, MPH,<sup>c,d</sup> Sabrina J. Poon, MD,<sup>e</sup> Lori Uscher-Pines, PhD, MSc,<sup>f</sup> Ateev Mehrotra, MD, MPH<sup>b,g</sup>





#### **Original Investigation** | Health Informatics

#### Patient Characteristics Associated With Telemedicine Access for Primary and Specialty Ambulatory Care During the COVID-19 Pandemic

Lauren A. Eberly, MD, MPH; Michael J. Kallan, MS; Howard M. Julien, MD, MPH, ML; Norrisa Haynes, MD, MPH; Sameed Ahmed M. Khatana, MD, MPH; Ashwin S. Nathan, MD; Christopher Snider, MPH; Neel P. Chokshi, MD, MBA; Nwamaka D. Eneanya, MD, MPH; Samuel U. Takvorian, MD, MS; Rebecca Anastos-Wallen, MD; Krisda Chaiyachati, MD, MPH, MS; Marietta Ambrose, MD, MPH, MSEd; Rupal O'Quinn, MD; Matthew Seigerman, MD; Lee R. Goldberg, MD, MPH; Damien Leri, MSEd, MPH; Katherine Choi, MD; Yevginiy Gitelman, MD; Daniel M. Kolansky, MD; Thomas P. Cappola, MD, ScM; Victor A. Ferrari, MD; C. William Hanson, MD; Mary Elizabeth Deleener, MBA, BSN, RN; Srinath Adusumalli, MD, MSc

Characteristic	Adjusted odds ratio (95% CI)	Video use Video use less likely more likely
Aged 55-64 y vs <55 y	0.79 (0.76-0.82)	=
Aged 65-74 y vs <55 y	0.78 (0.74-0.83)	-
Aged >75 y vs <55 y	0.49 (0.46-0.53)	♣-
Female	0.92 (0.90-0.95)	-
Black vs White	0.65 (0.62-0.68)	-
Latinx vs White	0.90 (0.83-0.97)	-8-
Asian vs White	0.99 (0.91-1.08)	- <b>-</b>
Other race/ethnicity vs White	0.95 (0.87-1.04)	
Unknown race/ethnicity vs White	1.00 (0.93-1.08)	- <b>+</b> -
Non-English language	0.85 (0.76-0.95)	
Medicaid vs commercial insurance	0.68 (0.64-0.72)	-
Medicare vs commercial insurance	0.75 (0.71-0.79)	-
Median household income <\$50 000 vs >\$100 000	0.57 (0.54-0.60)	<b>.</b>
Median household Income \$50 000-\$100 000 vs >\$100 000	0.89 (0.85-0.92)	-
Charlson Comorbidity Index score 1-2 vs 0	0.89 (0.86-0.92)	
Charlson Comorbidity Index score ≥3 vs 0	0.80 (0.77-0.84)	-

#### Figure 2. Forest Plots Showing Adjusted Odds Ratios for Video Use for Telemedicine Visit

JAMA Network Open. 2020;3(12):e2031640. December 29, 2020

Adjusted odds ratio (95% CI)



Center for Pediatric Clinical Effectiveness



gerberj@chop.edu

## Thank you!

Month and the