

**Harvard Medical School
Curriculum Vitae**

Date Prepared: 3/10/2022
Name: Daniel Shapiro
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Place of Birth: New Haven, CT

Education:

2008	BA	Economics (major), Spanish (Minor)	Stanford University
2016	MD	Medicine	University of California, San Francisco
2023 (expected)	MPH	Clinical Effectiveness	Harvard School of Public Health

Postdoctoral Training:

06/2016-06/2019	Intern and resident	Pediatrics	Boston Children's Hospital and Boston Medical Center
7/2019-7/4/21	Clinical fellow	Pediatric Emergency Medicine	Boston Children's Hospital
7/4/21-7/3/23	Research fellow	Harvard-wide Pediatric Health Services Research Fellowship	Harvard University and Boston Children's Hospital

Faculty Academic Appointments:

07/2021-	Instructor in Pediatrics	Department of Pediatrics	Harvard Medical School
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Appointments at Hospitals/Affiliated Institutions:

7/5/21-7/4/22	Staff physician	Pediatric Emergency Medicine	Boston Children's Hospital
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Other Professional Positions:

2008-2009	Research associate	NERA Economic Consulting
2009	Research associate	Stanford Institute for Economic Policy Research
2011-2012	Research assistant	University of California, San Francisco
2009-2019	Researcher/statistical programming consultant	University of California, San Francisco and University of Utah

Committee Service:

National

2020-	Fellow representative to the Steering Committee	Pediatric Emergency Medicine Collaborative Research Committee (PEMCRC)
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Professional Societies:

2016-	American Academy of Pediatrics	Member
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Editorial Activities:

Ad Hoc Reviewer

Annals of Emergency Medicine
 Annals of Internal Medicine
 BMC Infectious Diseases
 BMJ Open
 JAMA Internal Medicine
 JAMA Pediatrics
 Journal of Antimicrobial Chemotherapy
 Journal of Hospital Medicine
 Journal of the Pediatric Infectious Diseases Society
 Journal of Pediatrics
 Open Forum Infectious Diseases
 Pediatric Emergency Care
 PLoS Medicine

Pediatric Emergency Care

Pediatrics

Honors and Prizes:

2004	High School Soccer All-American	National Soccer Coaches Association and Adidas
2008	Phi Beta Kappa Honor Society	
2012	Schroeder Fellowship for Student Research in Health Policy/Systems Improvement	University of California, San Francisco School of Medicine
2014	Dean's Prize for Research and Scholarship, Health and Society Pathway	University of California, San Francisco School of Medicine
2017	Fred Lovejoy Resident Research Grant	Boston Children's Hospital
2017	CDC Charles G Science Award for Scientific Excellence in Assessment	Centers for Disease Control and Prevention (CDC)

Report of Funded and Unfunded Projects

Training Grants and Mentored Trainee Grants

2021-2023 T32
Agency for Healthcare Research and Quality
Grantee
I am a fellow in the Harvard-wide Pediatric Health Services Research Fellowship, through which I am obtaining an MPH at the Harvard School of Public Health and am participating in mentored research.

Unfunded Current Projects

2021- *Respiratory virus testing and clinical outcomes in children hospitalized with pneumonia*
Principal investigator
Using data from the Pediatric Health Information System (PHIS), we identify time trends in the use of respiratory virus tests and assess for an association between hospital-level viral testing and clinical outcomes among children hospitalized with pneumonia.

2022- *Antibiotic and non-antibiotic low-value care services for outpatient acute respiratory tract infections in the United States*

Principal investigator

Using a national database of ambulatory care visits, we are estimating the frequency of low-value care services and comparing characteristics of visits associated with antibiotic versus non-antibiotic low-value care services.

Report of Local Teaching and Training

Teaching of Students in Courses:

2007-2008	Writing tutor	Stanford University Hume Writing Center
2013	Physics instructor	UCSF School of Medicine Post-Baccalaureate Program

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs):

2019-	Lecturer at pediatric emergency medicine fellow's conference	Boston, MA. 4 lectures per year
2019-	Lecturer at resident conference in pediatric emergency medicine	Boston, MA. 4 lectures per year

Clinical Supervisory and Training Responsibilities:

2021-	Clinical attending/supervising physician for residents and fellows	Boston, MA, 16 hours per week
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Report of Clinical Activities and Innovations

Current Licensure and Certification:

2019 -	Massachusetts Board of Registration in Medicine
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Practice Activities:

2021-	Staff physician	Boston Children's Hospital, Division of Emergency Medicine	16 hours per week
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Report of Scholarship

Peer-Reviewed Scholarship in print or other media:

Research Investigations

1. **Shapiro DJ**, Gonzales R, Cabana MD, Hersh AL. National trends in visits and antibiotic prescribing for children with acute sinusitis. *Pediatrics*. 2011 Jan; 127(1).
2. Hersh AL, **Shapiro DJ**, Newland JG, Polgreen PM, Beekmann SE, Shah SS. Variation in pediatric infectious disease consultants' recommendations for management of community acquired pneumonia. *PLoS One*. 2011 May; 6(5).

3. Copp HL, **Shapiro DJ**, Hersh AL. National ambulatory antibiotic prescribing patterns for pediatric urinary tract infection, 1998-2007. *Pediatrics*. 2011 Jun; 127(6).
4. Hersh AL, **Shapiro DJ**, Pavia AT, Shah SS. Antibiotic prescribing in ambulatory pediatrics in the United States. *Pediatrics*. 2011 Dec; 128(6).
5. Cho CS, Maselli J, **Shapiro DJ**, Cabana MD, Hersh AL. A national depiction of children with return visits to the ED within 72 hours, 2001-2007. *Pediatric Emergency Care*. 2012 Jul;28(7):606-10.
6. **Shapiro DJ**, Hersh AL, Cabana MD, Sutherland SM, Patel AI. Hypertension screening during ambulatory pediatric visits in the United States, 2000-2009. *Pediatrics*. 2012 Oct;130(4):604-10.
7. Fairlie T, **Shapiro DJ**, Hersh AL, Hick LA. National trends in visit rates and antibiotic prescribing for adults with acute sinusitis. *Arch Intern Med*. 2012 Oct 22; 172(19): 1513-4.
8. Goldman JL, Jackson MA, Herigon JC, Hersh AL, **Shapiro DJ**, Leeder JS. Trends in adverse reactions to trimethoprim-sulfamethoxazole. *Pediatrics*. 2013 Jan; 131(1): e103-8.
9. Edlin RS, **Shapiro DJ**, Hersh AL, Copp HL. Antibiotic resistance patterns in outpatient pediatric urinary tract infections. *J Urol*. 2013 Jul;190(1):222-7.
10. Neuman MI, Shah SS, **Shapiro DJ**, Hersh AL. Emergency department management of childhood pneumonia in the United States prior to publication of national guidelines. *Acad Emerg Med*. 2013 Mar;20(3):240-6.
11. Patel AI, **Shapiro DJ**, Wang YC, Cabana MD. Sociodemographic characteristics and beverage intake of children who drink tap water. *Am J Prev Med*. 2013 Jul;45(1):75-82.
12. **Shapiro DJ**, Hicks LA, Pavia AT, Hersh AL. Antibiotic prescribing for adults in ambulatory care in the USA, 2007-2009. *J Antimicrob Chemother*. Jan;69(1):234-40.
13. Saperston KN, **Shapiro DJ**, Hersh AL, Copp HL. A comparison of inpatient versus outpatient resistance patterns of pediatric urinary tract infection. *J Urol*. 2014 May;191(5 Suppl):1608-13.
14. Blaschke A, **Shapiro DJ**, Pavia AT, Stockman C, Hersh AL. A National Study of the Impact of Rapid Influenza Testing on Clinical Care in the Emergency Department. *J Pediatric Infect Dis Soc*. 2014 Jun;3(2):112-118.
15. Mistry RD, **Shapiro DJ**, Goyal MK, Zaoutis TE, Gerber JS, Liu C, Hersh AL. Clinical management of skin and soft tissue infections in U.S. emergency departments. *West J Emerg Med*. 2014 Jul;15(4):491-8.
16. Wortham JM, **Shapiro DJ**, Hersh AL, Hicks LA. Burden of ambulatory visits and antibiotic prescribing patterns for adults with community-acquired pneumonia in the United States, 1998 through 2009. *JAMA Intern Med*. 2014 Sep;174(9):1520-2.
17. Dooling KL, **Shapiro DJ**, Van Beneden C, Hersh AL, Hicks LA. Overprescribing and inappropriate antibiotic selection for children with pharyngitis in the United States, 1997-2010. *JAMA Pediatr*. 2014 Nov;168(11):1073-4.

18. Fleming-Dutra KE, **Shapiro DJ**, Hicks LA, Gerber JS, Hersh AL. Race, otitis media, and antibiotic selection. *Pediatrics*. 2014 Dec;134(6):1059-66.
19. Fleming-Dutra KE, Hersh AL, **Shapiro DJ**, Bartoces M, Enns EA, File TM Jr, Finkelstein JA, Gerber JS, Hyun DY, Linder JA, Lynfield R, Margolis DJ, May LS, Merenstein D, Metlay JP, Newland JG, Piccirillo JF, Roberts RM, Sanchez GV, Suda KJ, Thomas A, Woo TM, Zetts RM, Hicks LA. Prevalence of Inappropriate Antibiotic Prescriptions Among US Ambulatory Care Visits, 2010-2011. *JAMA*. 2016 May 3;315(17):1864-73.
20. Sanchez GV, Hersh AL, **Shapiro DJ**, Cawley JF, Hicks LA. Outpatient Antibiotic Prescribing Among United States Nurse Practitioners and Physician Assistants. *Open Forum Infect Dis*. 2016 Aug 10;3(3).
21. Kobayashi M, **Shapiro DJ**, Hersh AL, Sanchez GV, Hicks LA. Outpatient Antibiotic Prescribing Practices for Uncomplicated Urinary Tract Infection in Women in the United States, 2002–2011. *Open Forum Infect Dis*. 2016 Sep; 3(3): ofw159.
22. Hersh AL, Fleming-Dutra KE, **Shapiro DJ**, Hyun DH, Hicks LA, for the Outpatient Antibiotic Use Target-Setting Workgroup. Frequency of first-line antibiotic selection among US ambulatory care visits for otitis media, sinusitis and pharyngitis. *JAMA Intern Med*, 2016 Dec 1;176(12):1870-1872.
23. **Shapiro DJ**, Lindgren CE, Neuman MI, Fine AM. Viral Features and Testing for Streptococcal Pharyngitis. *Pediatrics*. 2017 May;139(5).
24. Sanchez GV, **Shapiro DJ**, Hersh AL, Hicks LA, Fleming-Dutra KE. Outpatient Macrolide Antibiotic Prescribing in the United States, 2008-2011. *Open Forum Infect Dis*. 2017 Oct 8;4(4).
25. Hersh AL, **Shapiro DJ**, Pavia AT, Fleming-Dutra KE, Hicks LA. Geographic Variability in Diagnosis and Antibiotic Prescribing for Acute Respiratory Tract Infections. *Infect Dis Ther*. 2018 Mar;7(1):171-174.
26. Kabbani S, Hersh AL, **Shapiro DJ**, Fleming-Dutra KE, Pavia AT, Hicks LA. Opportunities to Improve Fluoroquinolone Prescribing in the United States for Adult Ambulatory Care Visits. *Clin Infect Dis*. 2018 Jun 18;67(1):134-136.
27. Selekmán RE, **Shapiro DJ**, Boscardin J, Williams G, Craig JC, Brandström P, Pennesi M, Roussey-Kesler G, Hari P, Copp HL. Uropathogen Resistance and Antibiotic Prophylaxis: A Meta-Analysis. *Pediatrics*. 2018 Jul;142(1).
28. Roberts RM, Hersh AL, **Shapiro DJ**, Fleming-Dutra KE, Hicks LA. Antibiotic Prescriptions Associated With Dental-Related Emergency Department Visits. *Ann Emerg Med*. 2018 Nov 1. pii: S0196-0644(18)31279-4.
29. Poole NM, **Shapiro DJ**, Fleming-Dutra KE, Hicks LA, Hersh AL, Kronman MP. Antibiotic Prescribing for Children in United States Emergency Departments: 2009-2014. *Pediatrics*. 2019 Jan 8. pii: e20181056. doi: 10.1542/peds.2018-1056.
30. Fritz SA, **Shapiro DJ**, Hersh AL. National Trends in Incidence of Purulent Skin and Soft Tissue Infections in Patients Presenting to Ambulatory and Emergency Department Settings, 2000-2015. *Clin Infect Dis*. 2019 Oct 12. pii: ciz977. doi: 10.1093/cid/ciz977.

31. **Shapiro DJ**, Fine AM. Patient Ethnicity and Pediatric Visits to the Emergency Department for Fever. *Pediatric Emergency Care*. 2019 Nov 8. doi: 10.1097/PEC.0000000000001945.
32. Poole NM, **Shapiro DJ**, Kronman MP, Hersh AL. Ambulatory Antibiotic Prescribing for Children with Pneumonia After Publication of National Guidelines: A Cross-Sectional Retrospective Study. *Infect Dis Ther*. 2019 Nov 27. doi: 10.1007/s40121-019-00276-3.
33. **Shapiro DJ**, Barak-Corren Y, Neuman MI, Mandl KD, Harper MB, Fine AM. Identifying Patients at Lowest Risk for Streptococcal Pharyngitis: A National Validation Study. *J Pediatr*. 2020 Feb 14. pii: S0022-3476(20)30043-3.
34. **Shapiro DJ**, King LM, Fleming-Dutra KE, Hicks LA, Hersh AL. Association between use of diagnostic tests and antibiotic prescribing for pharyngitis in the United States. *Infect Control Hosp Epidemiol*. 2020 Feb 24:1-3.
35. Hersh AL, King LM, **Shapiro DJ**, Hicks LA, Fleming-Dutra KE. Unnecessary Antibiotic Prescribing in US Ambulatory Care Settings, 2010-2015. *Clin Infect Dis*. 2020 Jun 2;ciaa667.
36. Hersh AL, **Shapiro DJ**, Zhang M, Madaras-Kelly K. Contribution of Penicillin Allergy Labels to Second-Line Broad-Spectrum Antibiotic Prescribing for Pediatric Respiratory Tract Infections. *Infect Dis Ther*. 2020 Jul 13. doi: 10.1007/s40121-020-00320-7.
37. **Shapiro DJ**, Neal JT. A Young Boy with Fever and Grunting. *Clin Pract Cases Emerg Med*. 2021 Feb;5(1):125-126.
38. **Shapiro DJ**, Hall M, Lipsett SC, Hersh AL, Ambroggio L, Shah SS, Brogan TV, Gerber JS, Williams DJ, Grijalva CG, Blaschke AJ, Neuman MI. Short- Versus Prolonged-Duration Antibiotics for Outpatient Pneumonia in Children. *J Pediatr*. 2021 Jul;234:205-211.e1.
39. **Shapiro DJ**, King LM, Tsay SV, Hicks LA, Hersh AL. Association between antibiotic prescribing and visit duration among patients with respiratory tract infections. *Infect Control Hosp Epidemiol*. 2021 Jun 11:1-4.
40. **Shapiro DJ**, Palmer NP, Bourgeois FT. Factors associated with corticosteroid treatment for pediatric acute respiratory tract infections. *J Pediatric Infect Dis Soc*. 2021 Sep 1;piab082.
41. **Shapiro DJ**, Fine AM, Hersh AL, Bourgeois FT. Association between molecular streptococcal testing and antibiotic use for pharyngitis in children. *J Pediatric Infect Dis Soc*. 2022 Mar 7;piac008.

Narrative Report

My academic mission is to improve the diagnosis and management of common infectious illnesses in children. Specifically, I am passionate about antibiotic stewardship, distinguishing viral from bacterial infections, and understanding drivers of resource utilization for low-acuity pediatric infectious conditions. I believe that avoiding low-value interventions for acute respiratory tract infections can improve health and reduce costs by minimizing harmful treatments and preventing unintended downstream cascades of care. Since clinical decisions in the pediatric emergency department are made with imperfect information, with easy access to diagnostic testing, and for a diverse population of patients, I believe that it is an ideal environment to study research questions in this area.

Prior to and during medical school, most of my published work related to the epidemiology of antibiotic use in children. As a research assistant at University of California San Francisco and in collaboration with colleagues at the Centers for Disease Control and Prevention, I used large national databases to describe variation in antibiotic prescribing for common pediatric infections. Among my specific contributions in this area were to quantify both the amount of antibiotic overuse and the degree of inappropriate antibiotic selection for acute respiratory tract infections. In addition, I helped to enumerate the association between implementation of clinical practice guidelines and appropriate antibiotic use for specific infections such as sinusitis and pneumonia. I have published work that describes the national epidemiology of antibiotic resistance among urinary tract infections and establishes a clear relationship between antibiotic prophylaxis for vesicoureteral reflux and subsequent multidrug-resistant urinary tract infections. Several of my publications have highlighted disparities in appropriate antibiotic prescribing across geographic regions, clinician specialties, and patient demographics—findings which have informed national efforts to combat antibiotic overuse such as the Centers for Disease Control and Prevention’s “Be Antibiotics Aware” campaign.

As a way to formalize the process of studying antibiotic prescribing using administrative data, I helped to develop a tiered diagnostic classification system to categorize diagnoses as those for which antibiotics are (1) almost always indicated, (2) sometimes indicated, or (3) rarely indicated. Since publishing this system in 2016, we have used it as a way to create national benchmarks for surveilling antibiotic overuse. Additionally, many other investigators have adopted this system in related publications.

During my residency and fellowship, I have explored additional ways to improve management of common pediatric infections. As a way to reduce unnecessary antibiotic prescribing for patients with sore throat, I developed a clinical prediction model to better identify patients with sore throat and features of viral illness who could safely forego testing for group A Streptococcus. The idea behind this work is that diagnostic stewardship—i.e., the rational choice of diagnostic studies—can nudge us (and our patients) onto predictable treatment pathways that avoid costly or harmful interventions (in this case, unnecessary antibiotic treatment of “carriers” of the bacteria). Additionally, to begin to explore ways to safely reduce the duration of antibiotic therapy for common infections, I performed a comparative effectiveness analysis using claims data to demonstrate that short-course antibiotics were not associated with worse outcomes compared with prolonged-duration in a large national cohort of pediatric outpatients with community-acquired pneumonia. Ongoing projects related to diagnostic and therapeutic stewardship include assessing the clinical impacts of the use of molecular diagnostic tests for group A streptococcal pharyngitis, respiratory viral tests for community-acquired pneumonia, and unnecessary systemic corticosteroid treatment for acute respiratory tract infections.

In the long term, I want to be an independent grant-funded researcher and a leader in pediatric emergency medicine research. As means to this end, I have been granted T32 funding from the Agency for Healthcare Research and Quality through the Harvard-wide Pediatric Health Services Research Fellowship starting in the summer of 2021.

I have made contributions in teaching while at Boston Children’s Hospital. While working in pediatric emergency, I supervise residents and medical students in clinical care including procedures and medical management. I also give lectures to residents on topics such as pediatric respiratory illnesses, neurologic disorders, and neonatal fever. I have given evidence-based lectures to the pediatric emergency medicine division on procedures and medical management.