Children's Hospital of Philadelphia
PolicyLab

How Can HPV Vaccination Rates be Improved?

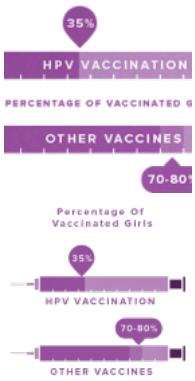
Statement of Problem

Human papilloma virus (HPV) is most commonly known to cause genital warts, but may also lead to cervical cancer, a significant cause of mortality in women. Despite clinical trials showing the HPV vaccine is safe and effective, vaccination rates remain low among adolescent girls (35 percent fully vaccinated, compared to 70-80 percent for other common adolescent vaccines). Parents report delaying HPV vaccination due to concerns about safety and fears that vaccination may lead to an earlier onset of sexual activity. Additionally, clinician beliefs and practice styles and adolescents' infrequent health care visits may limit receipt of the HPV vaccine, especially since all three doses are required for full protection. We need innovative interventions to overcome these obstacles to vaccine receipt.

Through our research, we aim to inform programs and policy changes that ensure these adolescents can receive care to meet their unique needs and, ultimately, transition to healthy, productive adults. For example, we're investigating how using electronic health records may promote efficient workflows and provide automated support to families and clinicians during health decision-making.

Description

How can HPV vaccination rates be improved?



Only **35%** of adolescent girls are fully vaccinated against HPV, compared to **70-80%** for other common adolescent vaccines.

PolicyLab developed a three-part clinician-focused decision support intervention (education, electronic health record-based alerts, and feedback), and a family-focused decision support intervention (automated reminder phone calls that also directed families to an educational website). In a one-year clinical trial, 22 primary care

practices within Children’s Hospital of Philadelphia's Pediatric Research Consortium were randomized to receive clinician-focused decision support or not. Within these practices, 22,486 girls ages 11-17 who were due for the HPV vaccine dose 1, 2, or 3 were randomized to receive family-focused decision support or not. This resulted in four study groups: clinician and family-focused decision support, clinician-focused only, family-focused only and no support. We measured effectiveness of the decision support by comparing final vaccination rates and time to vaccination between the study groups.

Decision support directed at both clinicians and families most effectively increased HPV vaccination rates. Clinician-focused reminders, education, and feedback were most effective for promoting the initiation of the HPV vaccine series, while the family-focused reminder phone calls supported completion of the vaccine series. Both types of decision support (family-focused and clinician-focused) accelerated vaccination uptake. The cost of implementing the most effective single intervention for each dose was low (?$10 per additional girl vaccinated).

Next Steps

To increase HPV vaccination rates, it is most effective to engage both the family and the clinician. These results demonstrate how health information technology can be utilized to engage both clinicians and families in order to improve health and health care outcomes. PolicyLab has disseminated these findings both locally and nationally, seeking to assist other healthcare providers in boosting their use of the HPV vaccine.

This project page was last updated in July 2019.

Suggested Citation

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PolicyLab Leads

Alexander Fiks
MD, MSCE

Faculty Member

Alex Fiks is a faculty member at PolicyLab at Children’s Hospital of Philadelphia (CHOP), an urban primary care pediatrician at CHOP, director of Clinical Futures at CHOP and an associate professor of pediatrics at the Perelman School of Medicine at the University of Pennsylvania. He is also the director of the American Academy of Pediatrics (AAP) Pediatric Research in Office Settings (PROS), a national research network,

medical director for the Pediatric Research Consortium (PeRC), CHOP's practice-based research network and co-director of the Possibilities Project, an initiative to innovate primary care delivery. Additionally, Dr. Fiks is a founding member of the hospital's Department of Biomedical and Health Informatics.

Board certified in clinical informatics, Dr. Fiks' research is aimed at improving outcomes for ambulatory pediatric patients through practice-based research with a focus on improving health and health care decision-making through health information technology. To achieve these goals, much of Dr. Fiks' research is focused on fostering shared decision making between clinicians and families, especially in the setting of behavioral health conditions. He is also especially interested in how electronic health record data may best be used to improve primary care, medication use and child health more broadly. As Director of AAP PROS, Dr. Fiks has been involved in building the Collaborative Electronic Reporting for Comparative Effectiveness Research (CER^2), an electronic health record database designed to support pharmacoepidemiologic and other comparative effectiveness studies that currently includes >2 million U.S. children from across multiple health systems.

Dr. Fiks received his medical degree from Harvard University, and received a Master's of Science in Clinical Epidemiology (MSCE) degree from the University of Pennsylvania. He has received additional training in clinical informatics.

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Team

Kristen Feemster
MD, MPH, MSHP

Faculty Scholar

Kristen A. Feemster is a faculty scholar at PolicyLab at Children's Hospital of Philadelphia (CHOP), an adjunct associate professor of pediatrics in the Division of Infectious Diseases at the University of Pennsylvania Perelman School of Medicine, research director for the Vaccine Education Center at CHOP and medical director of the Immunization Program and Acute Communicable Diseases at the Philadelphia Department of Public Health.

Dr. Feemster's portfolio reflects a longstanding interest in public health and a commitment to improve outcomes for children by addressing contextual factors that may impact disease risk and access to health services. This has resulted in two complimentary foci: 1) understanding how environmental factors, social networks, and community systems affect the epidemiology of infectious diseases; and 2) evaluating policies related to the

prevention of pediatric infectious diseases, specifically vaccine policies. Her current research includes vaccine acceptance among parents and immunization providers in the U.S. and internationally, community-based interventions to improve vaccine uptake, neighborhood factors associated with the incidence of pertussis and influenza, and health-care associated respiratory infection in the pediatric ambulatory setting. This body of work has also demonstrated the importance of understanding the drivers of health-related behaviors and adoption of new recommendations to ensure effective policy implementation.

At Penn and CHOP, Dr. Feemster is affiliated with the Leonard Davis Institute of Health Economics, PolicyLab, Clinical Futures and Global Health programs at CHOP. She serves as a technical advisor for an American Academy of Pediatrics global immunization advocacy initiative and is past-chair of the Advisory Commission for Childhood Vaccines that advises the National Vaccine Injury Compensation Program. In the community, she serves on the boards of the Philadelphia and Pennsylvania Immunization Coalitions.

Dr. Feemster received her MD and an MPH in population and family health from Columbia University Schools of Medicine and Public Health in New York City. She completed pediatric residency at CHOP then pursued a dual fellowship training program in health services research and pediatric infectious diseases: she was a fellow in the Robert Wood Johnson Foundation (RWJF) Clinical Scholars Program at Penn, completing a master of science in health policy research then returned to CHOP for pediatric infectious diseases training. She joined the faculty in 2010.

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Stephanie Mayne
PhD, MHS

Faculty Member

Stephanie Mayne (she/her) is a faculty member at PolicyLab at Children's Hospital of Philadelphia (CHOP), the associate director of Clinical Epidemiology at Clinical Futures at CHOP, and an assistant professor of pediatrics at CHOP and the University of Pennsylvania. Her research focuses on the impact of environmental factors, including home and neighborhood factors on child health and well-being, with a particular focus on health behaviors related to future cardiovascular risk (e.g. sleep, diet). Her recent work focuses on incorporating mobile health techniques, such as GPS tracking and ecological momentary assessment, to understand more granular, time-varying environmental exposures and their health impacts.

Dr. Mayne received her PhD in Epidemiology from Drexel University and completed a postdoctoral training program in cardiovascular disease epidemiology at Northwestern University.

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Related Tools & Publications

- Improving HPV Vaccination Rates
  Tools and Memos
  Mar 2014

- Sociodemographic Differences in Human Papillomavirus Vaccine Initiation by Adolescent Males
  Article
  Sep 2015
- Improving HPV Vaccination Rates Using Maintenance-of-Certification Requirements
  Article
  Feb 2016
- Increasing HPV Vaccination Rates Among Adolescents: Challenges and Opportunities
  Evidence to Action Briefs
  Apr 2016
- HPV Vaccine Recommendation Profiles Among a National Network of Pediatric Practitioners: Understanding Contributors to Parental Vaccine Hesitancy and Acceptance
  Article
  Dec 2018
- Disparities in HPV Vaccine Series Completion by Adolescent Males: A Retrospective Cohort Study
  Article
  May 2019
- Missed Opportunities for Human Papillomavirus Vaccination at Office Visits During Which Influenza Vaccine Was Administered: An AAP Pediatric Research in Office Settings (PROS) National Primary Care Research Network Study
  Article
  Jul 2020
- HPV Vaccinations at Acute Visits and Subsequent Adolescent Preventive Visits
  Article
  Nov 2022
- Provider Perspectives on Clinical Decision Support to Improve HIV Prevention in Pediatric Primary Care: A Multiple Methods Study
  Article
  Feb 2023
- What Health Systems Can Do Now to Improve Human Papillomavirus Vaccination
  Article
  Nov 2023
- Missed Opportunities for Adolescent Immunizations at Well-Care Visits During the COVID-19 Pandemic

Article
Sep 2023