

How to effectively Deliver the Adolescent Vaccination Bundle in an Underserved FQHC-based Family Medicine Residency Clinic

Vi Tuong Nguyen, DO

Emily Farias, MD

Lauren Mamaril, DO

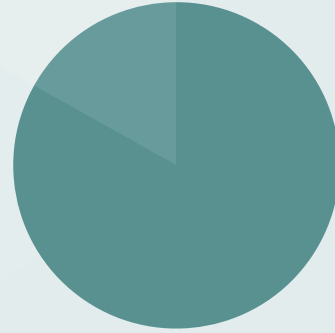
Ecler Jaqua, MD

Van Nguyen, DO

Kelly R. Morton, PhD

Family Medicine

Loma Linda University





Our FQHC based residency clinic had low Adolescent Immunization Rates

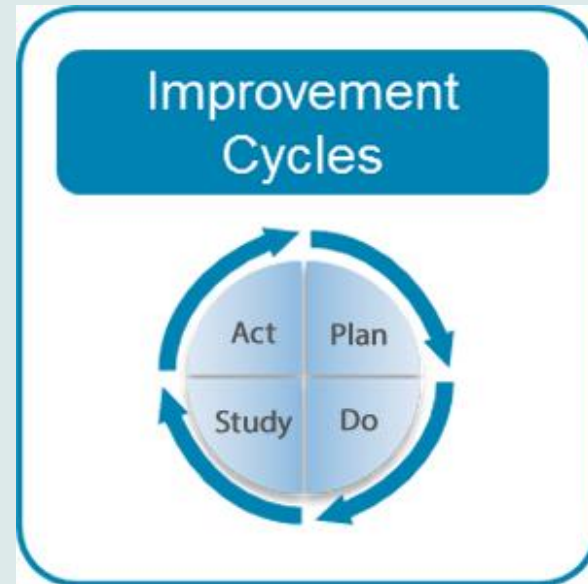
Goal: Increase Adolescent Immunization Bundle of Tdap, Meningococcal, & HPV

Baseline IEHP P4P Rate:

- July 2021: 30%
- July 2022: 35.5%

3 PDSA Cycles in Resident Led QI teams to increase Adolescent Vaccination Rates in 2022-23

- 4-month cycles
- Monthly 7am meetings
- Hierarchy of PGY roles
- Attendings, behavioral health, nursing & IT team members



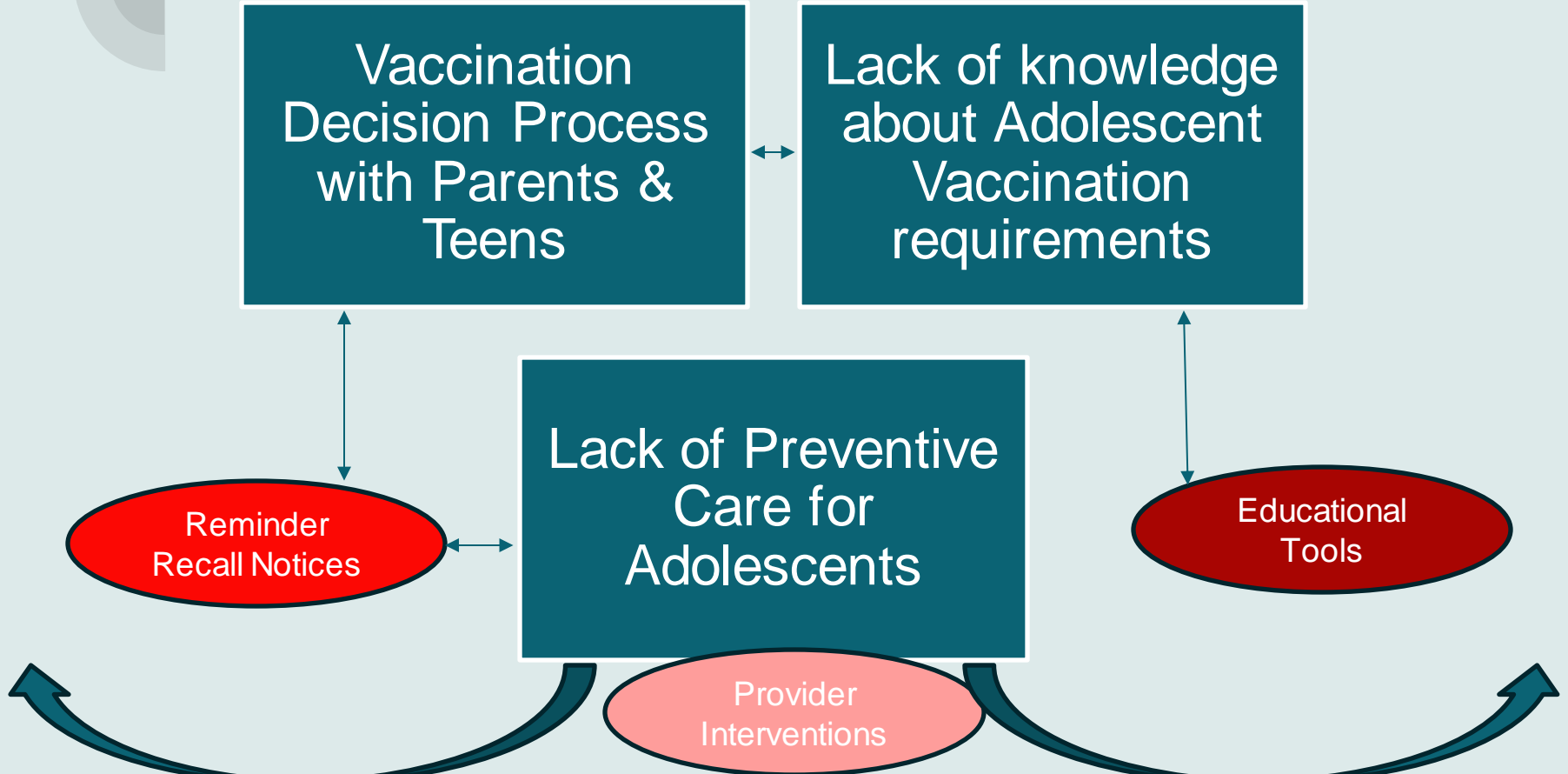
Adolescent Immunization: CDC Guidelines

Tdap	Meningococcal	HPV	HPV intervals
1 dose	2 doses	2-3 doses	
11-12 years	11-12 & 16 years	9-14 years	6 mths apart
		>15 years	1 mth 3 mths 5 mths apart



Review of Literature

Adolescent & Parental Barriers: Practical Solutions





Barriers & Solutions to child/teen vaccination

Parental Barrier	Parent Solution	PCP Barrier	PCP Solution
Poor understanding of vaccines	Education	Poor knowledge of schedules & contraindications	Education
Fear of adverse events	Education	Poor access to records	Registries like CAIR
Not understanding complex vaccination schedule	Education	Missed visits & missed opportunities	Pend orders & vaccinate at any visit
Logistical problems in coming to visits	Change clinic schedules	Poor communication with parents & teens	Education
Economic Problems	Free vaccines		



Research Demonstrates:

- Provider recommendation of a vaccine has a dramatic impact on vaccination rates
- Feedback and prompts during clinic reduces missed vaccination opportunities
- Recording reasons patient deferred vaccinations encourages providers to have the discussion and educate

CDC Suggests 5 Ways to Improve Vaccination Rates

- 1

Bundle your recommendation
- 2

Ensure a consistent message
- 3

Use every opportunity to vaccinate
- 4

Provide personal examples
- 5

Effectively answer questions



PDSA Cycle #1: Staff Pend Adolescent Vaccinations

Aim: Increase Combo 2 (HPV, Tdap, Meningococcal) from July - Sept

9-14yo

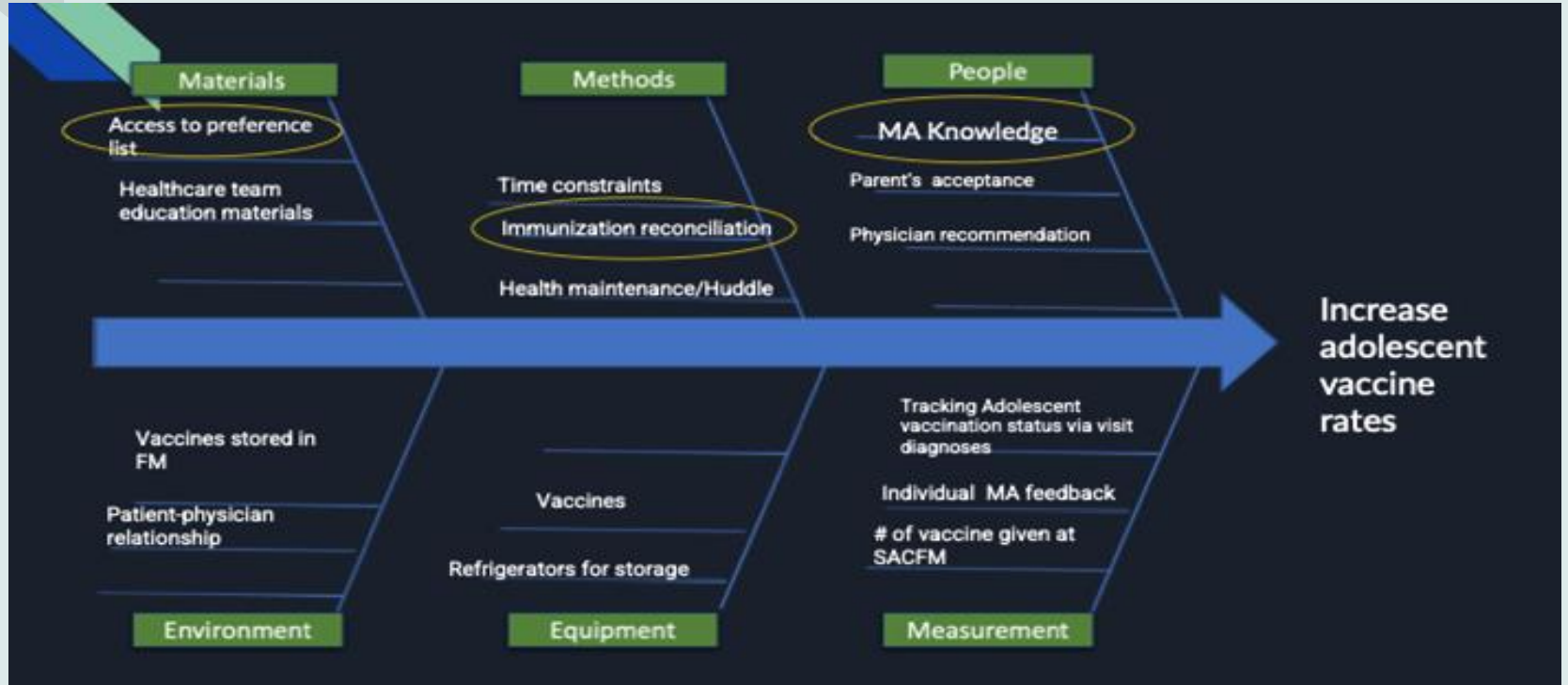
★ HPV (order at age 11)

★ Lipid Panel

★ Meningococcal (MCV4O), IM, 2-55 yrs

★ Tdap, IM, 7-65+ yrs

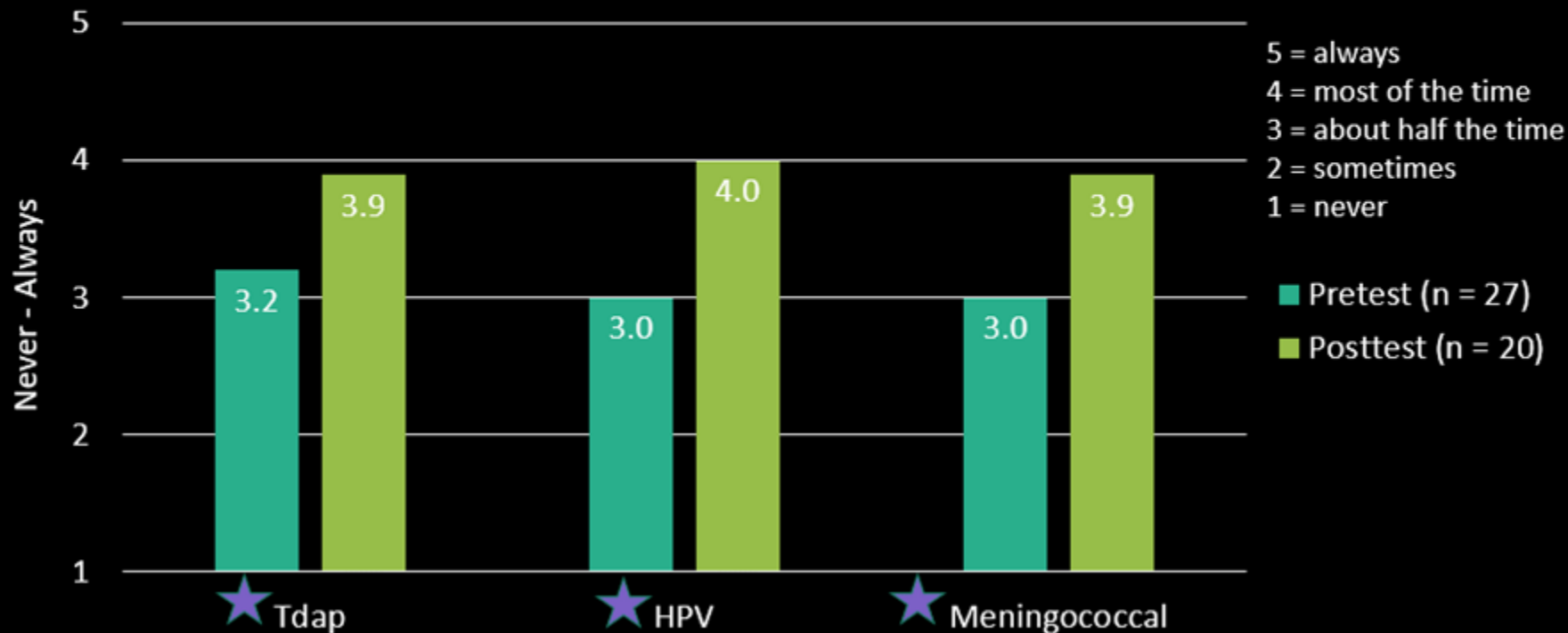
Root Cause Analysis - Fishbone Diagram



I pend adolescent vaccines when needed for patients ages 11 and older



Physicians discuss the following vaccination with unvaccinated patients



Counseling patients on vaccines (Tdap, HPV, Meningococcal) impacts cycle time

Extremely Negatively – Extremely Positively

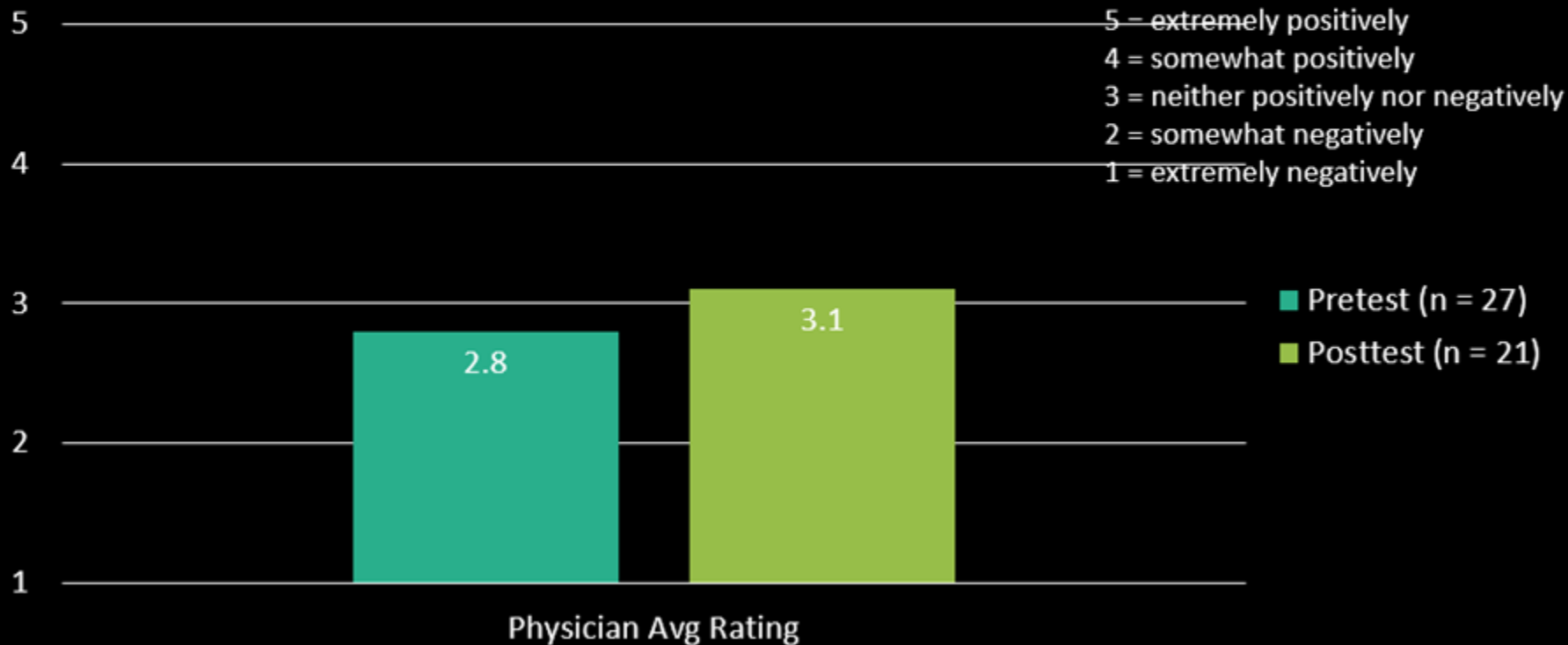
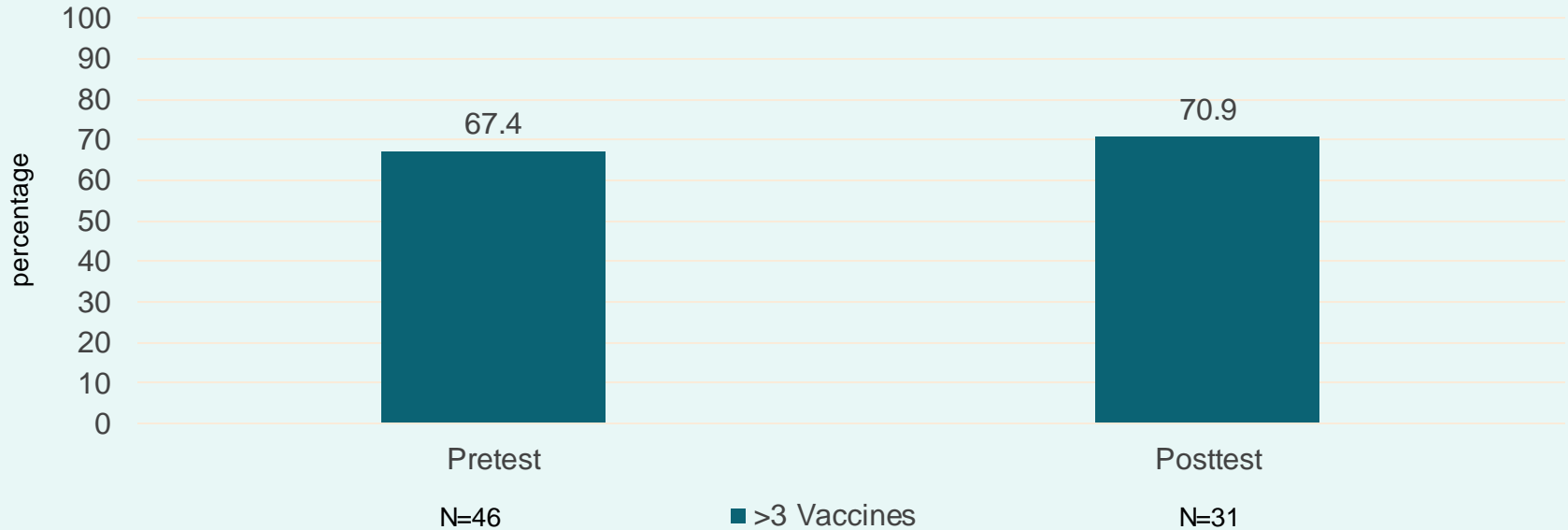


Chart Audit: Adolescent vaccines given more but NOT pended by MAs

$P > .05$





PDSA Cycle 2: Resident Education on HPV vaccines

AIM: Completion of the HPV series was the main barrier identified to improve adolescent vaccination rates

9-14yo

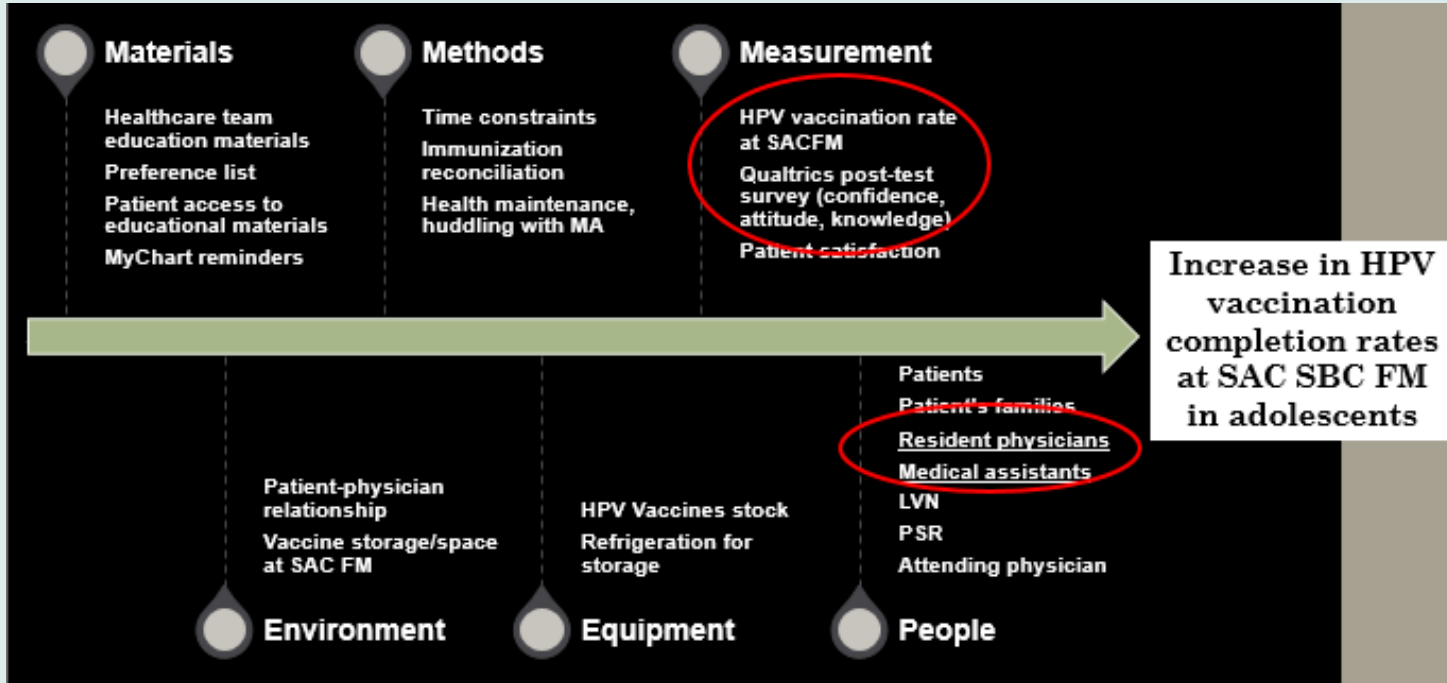
★ HPV (order at age 11)

★ Lipid Panel

★ Meningococcal (MCV4O), IM, 2-55 yrs

★ Tdap, IM, 7-65+ yrs

Fishbone Diagram: PDSA Cycle 2

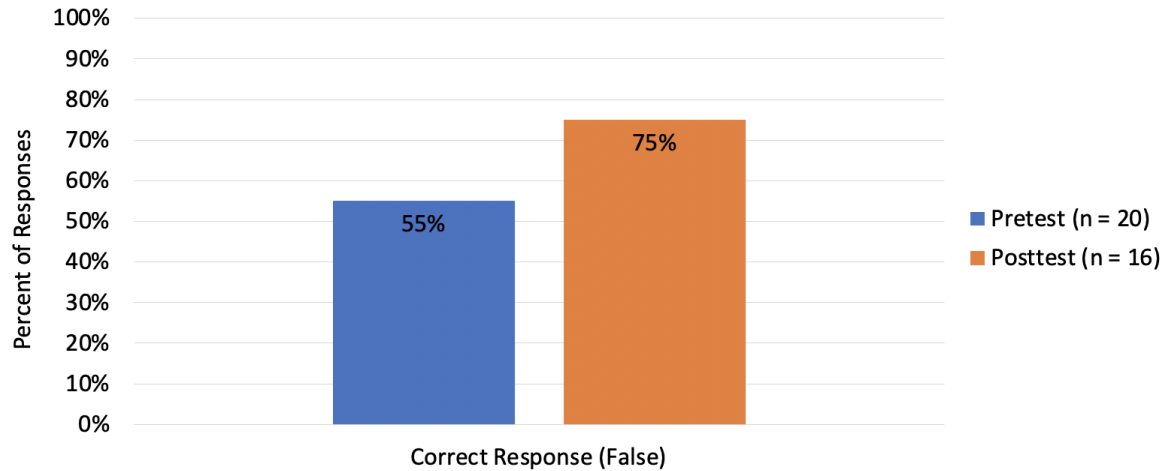


When should I offer the HPV vaccine?

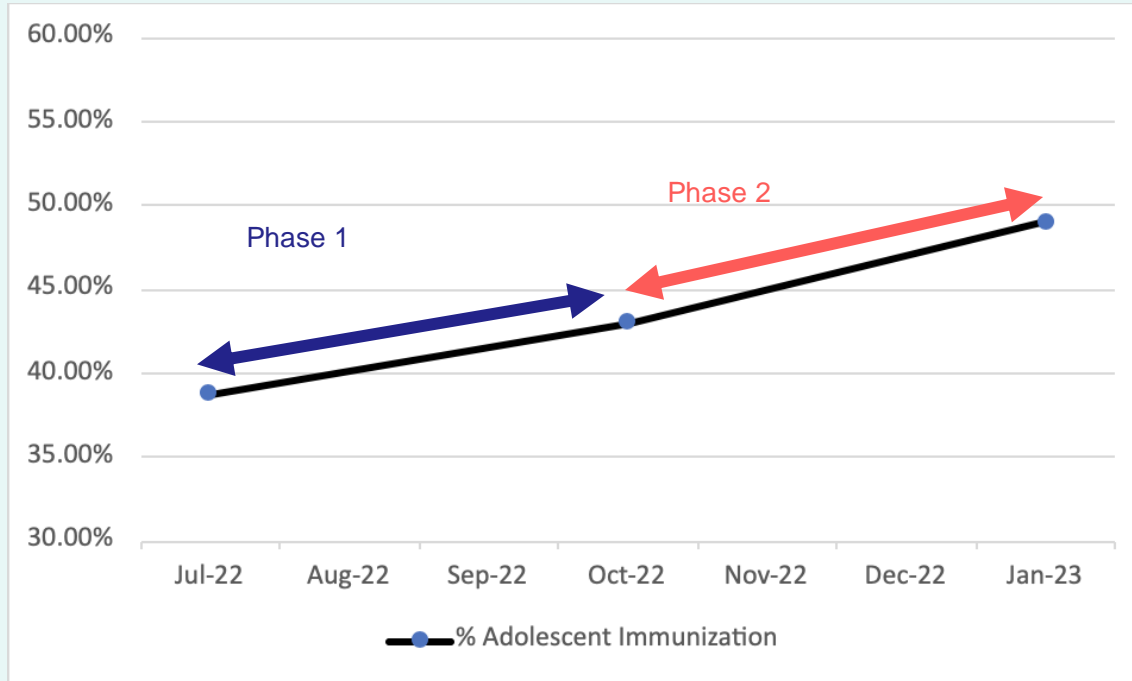
AGE AT FIRST DOSE	DOSE #2	DOSE #3
9 years until 15th birthday	6-12 months after dose #1	Not needed
15 years or older	1-2 month after dose #1	Approximately 4 months after dose #2

*If you have problems with your immune system, you will need to receive 3 doses of HPV vaccine

Three doses is recommended for most people who start the HPV series before age 15.



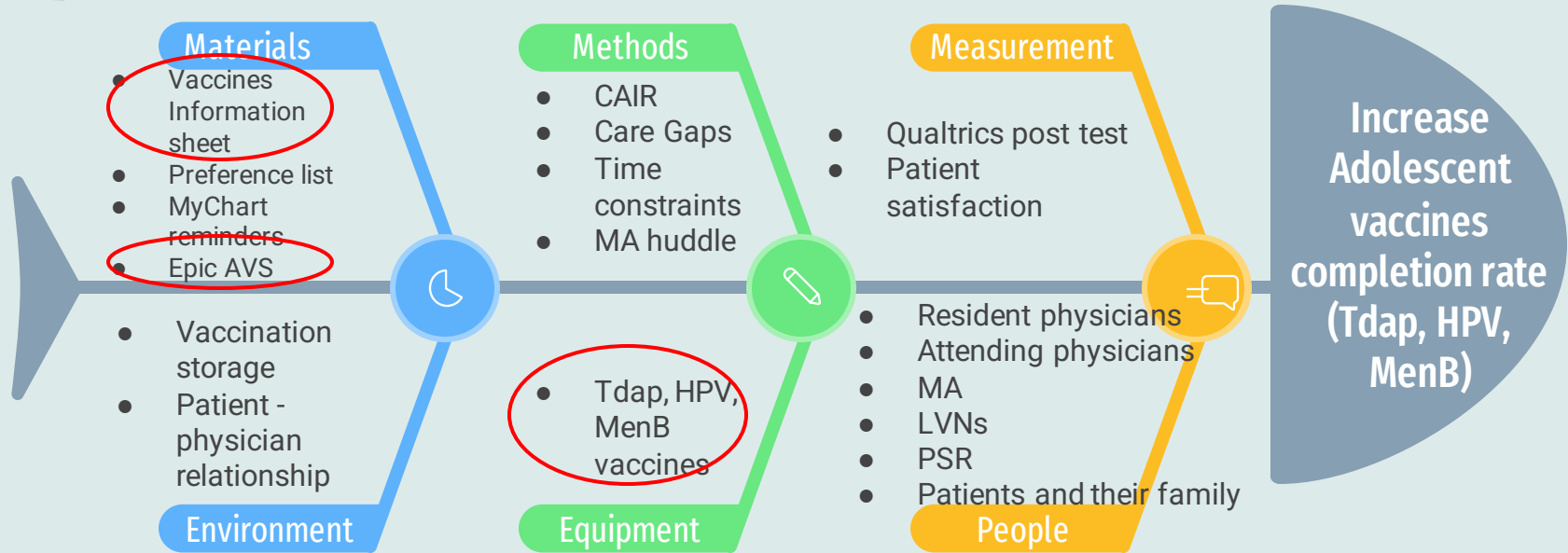
Adolescent Immunizations, Both HPV doses



PDSA Cycle 3: Standardize Clinic Workflow for Adolescent Vaccination Bundle

Aim: Coordinate care to prevent missed vaccination opportunities and educate parents to improve vaccination rates





Clinic Vaccine Workflow

Staff

1. Huddle before clinic; review vaccine care gaps with PCP
2. Check CAIR if vaccine Hx discrepancy
3. Room patient & confirm vaccine status
4. Give patient Vaccine Information Sheet for ALL vaccines
5. Pend all vaccines & warm handoff to PCP

Resident
PCP

6. PCP educates patient on recommended vaccines
7. Precepts with Attending

Attending

8. Attending approves vaccinations & sees patient

Vaccinations Given!



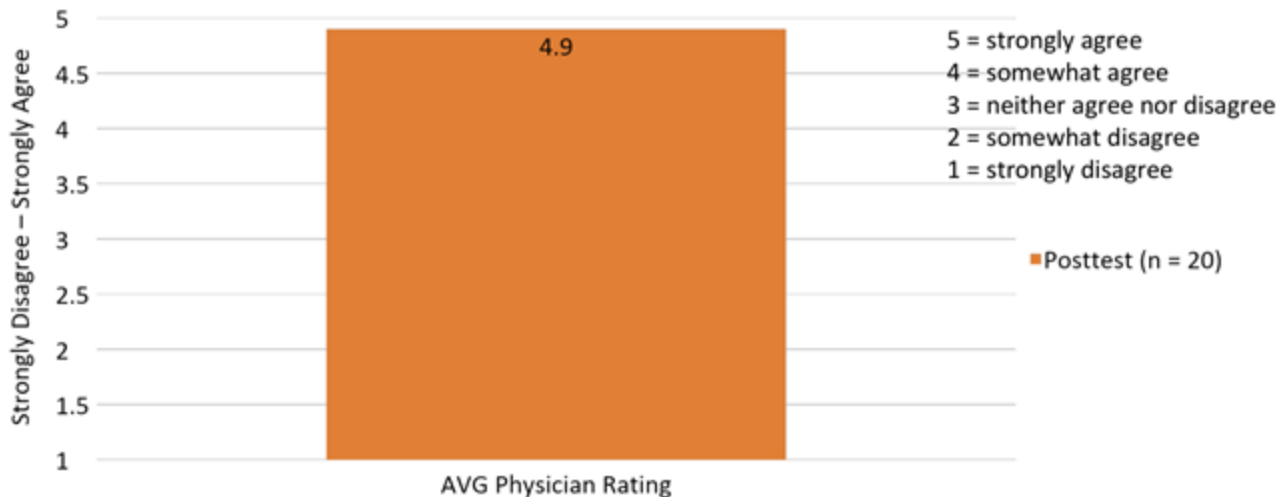
Outcome Measures

If patients ages 9 and above are not up to date with their vaccine, I pend the vaccine



Residents Questionnaire

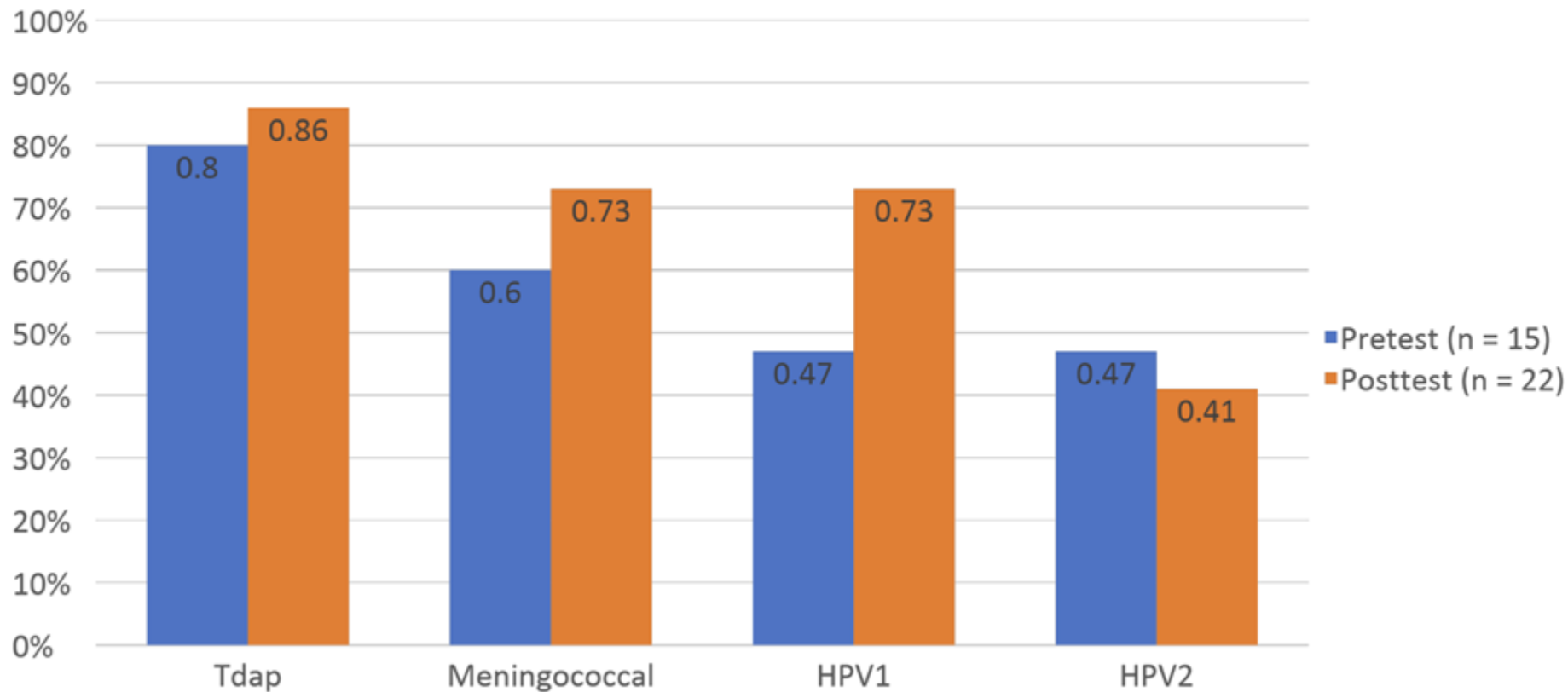
During well child visits, I always recommend vaccines to patients who are behind in their vaccines





Vaccination Rates

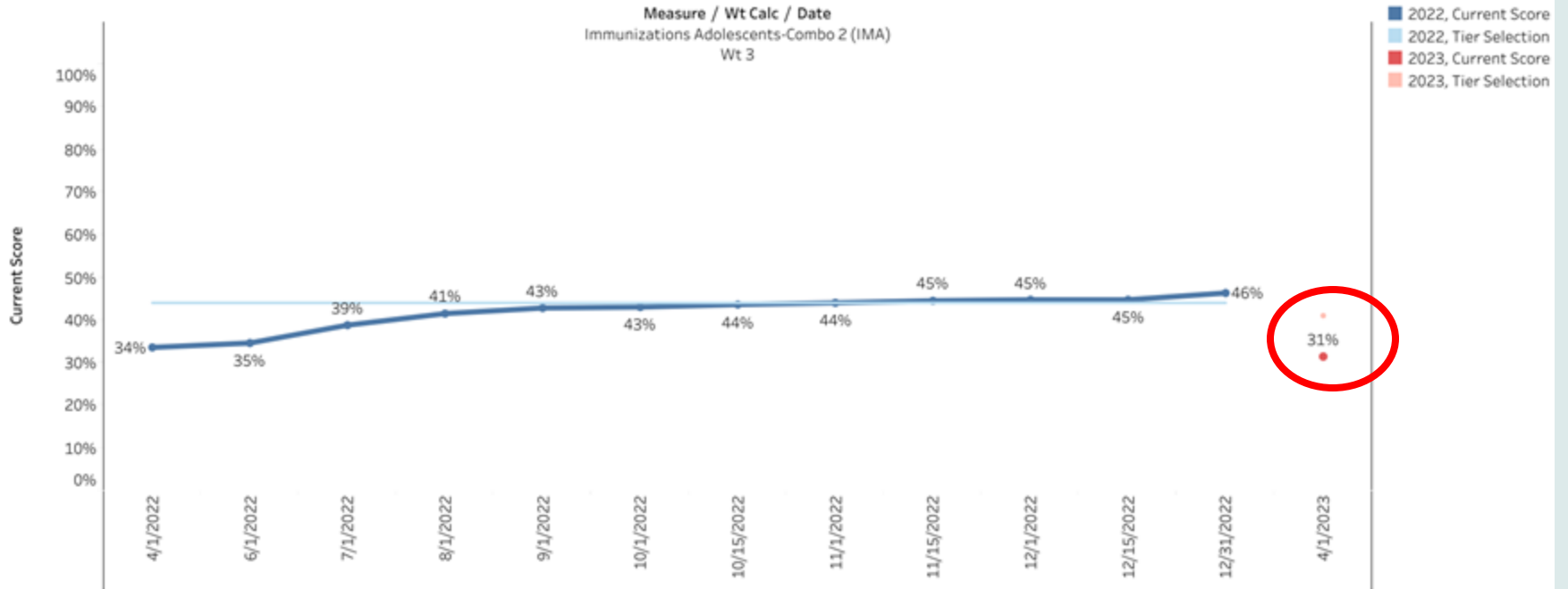
Adolescent Vaccination Rates



FQHC Family Medicine adolescent vaccination rates 2022-23

IEHP P4P rates RESET Jan 1!

SAC P4P Performance by Measure





Barriers

- Missed opportunities
 - Providers do not recommend vaccines for adolescents who come in for same day visits and office visits
- High turnover of staff
 - Some staff may be unfamiliar with workflow and vaccine schedules
- Data gets reset by January 2023 so we cannot get out continuity data of all three cycles but residents/staff are reporting more knowledge and vaccination recommendations/education with patients



References

- Caldwell, A. C., Madden, C. A., Thompson, D. M., Garbe, M. C., Roberts, J. R., Jacobson, R. M., & Darden, P. M. (2020). The impact of provider recommendation on human papillomavirus vaccine and other adolescent vaccines. *Human Vaccines & Immunotherapeutics*, 17(4), 1059–1067. <https://doi.org/10.1080/21645515.2020.1817713>
- Kong, W. Y., Bustamante, G., Pallotto, I. K., Margolis, M. A., Carlson, R., McRee, A. -L., & Gilkey, M. B. (2021). Disparities in healthcare providers' recommendation of HPV vaccination for U.S. adolescents: A systematic review. *Cancer Epidemiology, Biomarkers & Prevention*, 30(11), 1981–1992. <https://doi.org/10.1158/1055-9965.epi-21-0733>
- Lu, P.-jun, Yankey, D., Jeyarajah, J., O'Halloran, A., Meyer, S. A., Elam-Evans, L. D., & Reagan-Steiner, S. (2017). Impact of provider recommendation on Tdap vaccination of adolescents aged 13–17 years. *American Journal of Preventive Medicine*, 53(3), 373–384. <https://doi.org/10.1016/j.amepre.2017.03.022>
- Rand, C. M., Schaffer, S. J., Dhepyasuwan, N., Blumkin, A., Albertin, C., Serwint, J. R., Darden, P. M., Humiston, S. G., Mann, K. J., Stratbucker, W., & Szilagyi, P. G. (2018). Provider Communication, prompts, and feedback to improve HPV vaccination rates in resident clinics. *Pediatrics*, 141(4). <https://doi.org/10.1542/peds.2017-0498>
- Sabnis, S. S., Pomeranz, A. J., & Amateau, M. M. (2003). The effect of education on adolescent vaccination, feedback, and provider prompts on the rate of missed vaccine opportunities in a Community Health Center. *Clinical Pediatrics*, 42(2), 147–151. <https://doi.org/10.1177/000992280304200208>
- <https://www.sciencedirect.com/science/article/pii/S1198743X14601725>
- <https://www.cdc.gov/vaccines/vpd/tdap-td/hcp/recommendations.html>