

Increasing HPV Vaccination Rates in Residents' Primary Care Clinics

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Background

- The human papillomavirus (HPV) vaccine was approved in 2014 for the prevention of anogenital, cervical, and oropharyngeal cancers in female and male adolescents up to 26 years of age^{1,2}.
- Data compiled from multiple clinical trials performed between 2006 and 2018 sought to evaluate benefit from extending the vaccination age given the implications on improving quality of life, morbidity/mortality, and reducing overall healthcare costs for preventable diseases³
- Results showed that increasing the vaccination age up to 45 in both males and females could offer additional protections against high-risk oncogenic strains of the HPV virus³
- Current recommendations from the Advisory Committee for Immunization Practices (ACIP) support shared clinical decision-making when discussing HPV vaccination in adults³
- Despite these updated recommendations, HPV vaccination rates in adults remain low
- Several studies have determined that utilizing the electronic health record (EHR) for direct patient outreach leads to increased vaccine administration⁴
- The aim of this study is to investigate potential interventions in Jefferson Primary Care Clinics to increase adult HPV vaccination rates

Methods

- Retrospective patient data was utilized from Epic Systems[®] electronic health record (EHR) from July 1, 2022 until intervention date of April 23, 2024 to determine current vaccination rates
- Epic Systems[®] SlicerDicer was used to display demographic data and vaccine administration prior to the intervention roll out date
- Bulk patient messaging through the Epic Systems[®] EHR was utilized as our intervention to increase vaccine retention
- Review of literature for data extrapolation of similar EHR interventions was performed

Patient Population and Demographics by Clinics (ages 26-45)

	INT JHAP	INT 700 WALNUT	INT 33 9 TH
Gender			
- Male	9464	1432	32525
- Female	11530	36798	39898
Race			
- White	7657	21650	35807
- Black	9931	10331	24302
- Hispanic	1314	1679	4594
- Asian	1297	2377	5558
- Other	847	2080	2248

July 1st, 2022-April 23rd, 2024

Table 1. Patient demographics within ages 26 to 45 years of age at designated resident-run primary care clinics at Thomas Jefferson University. Note that INT 700 WALNUT is the Women's Primary Care Clinic which predominantly has female patient population.

Figure 1. HPV vaccinations administered to patients within the ages of 26 to 45 years old at designated resident-run primary care clinic at Thomas Jefferson University over the past 2 years.

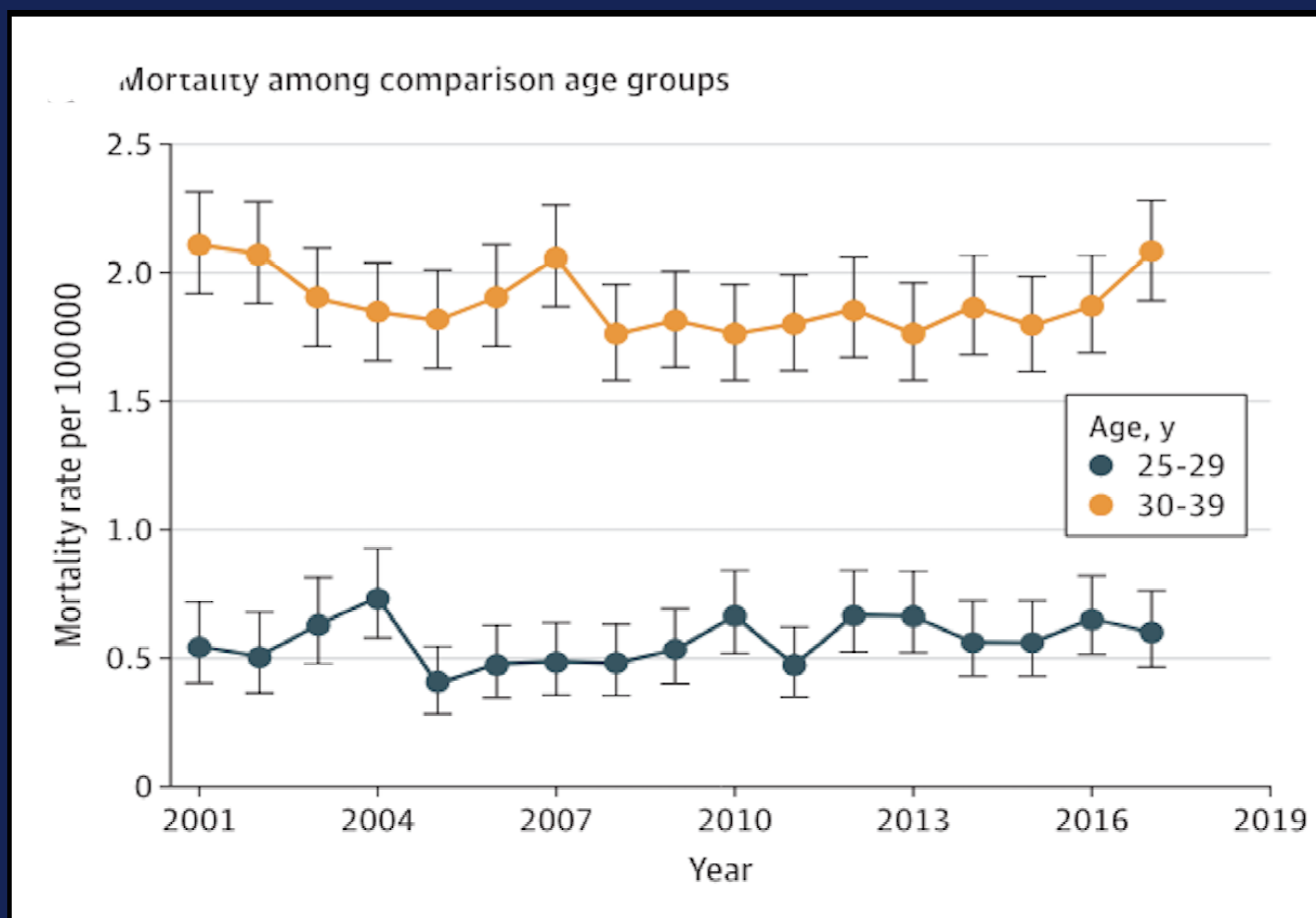
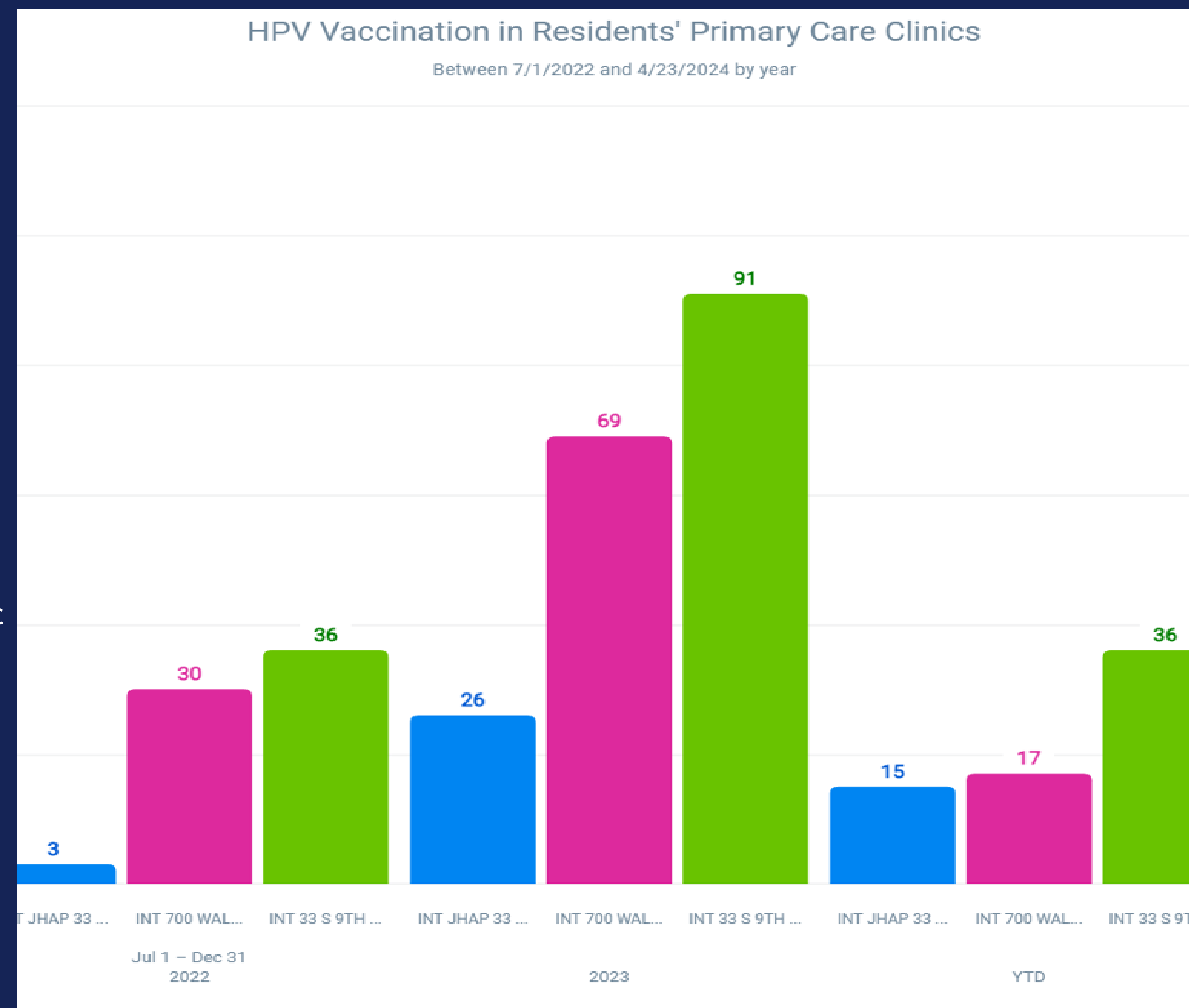


Figure 2. Mortality rate per 100,000 among listed age groups.

Results

- Building upon prior research, the current analysis will contribute to the existing body of knowledge by demonstrating that customized electronic reminders can enhance HPV vaccination rates among eligible individuals.
- Analysis of prior investigations demonstrates that patients receiving electronic health record (EHR) reminders exhibited a statistically significant increase in both appointment scheduling (Adjusted Odds Ratio [AOR]: 1.2, 95% Confidence Interval [CI]: 1.06–1.37) and receipt of an additional HPV vaccination (AOR: 1.35, 95% CI: 1.14–1.59) compared to the control group receiving usual care⁵
- Initiation (AOR: 1.32, 95% CI: 1.04–1.68) and completion (AOR: 1.32, 95% CI: 1.12–1.56) rates for HPV vaccination were significantly higher in intervention group than those observed in the usual care group⁵
- There is evidence for vaccine-associated decreases in cervical cancer mortality

Conclusions

- Data spanning the last decade show that critical portions of the population can benefit from HPV vaccinations beyond age 26
- Bulk patient messaging from ambulatory clinics represents a tool to bridge the gap
- Retrospective data extrapolation of similar studies utilizing EHR as a tool show an increase in vaccination rates as well as vaccine retention (completion of vaccine series)
- We anticipate increased vaccination rates with our intervention in the coming months with further implications to increase vaccine retention in our study locations
- Analysis of cancer rates at these clinics in coming years is a possible future direction; could also consider utilizing best practice advisories for clinicians

References

- The HPV Vaccine: Access and Use in the U.S. (2021). Kaiser Family Foundation. [https://www.kff.org/womens-health-policy/fact-sheet/the-hpv-vaccine-access-and-use-in-the-u-s/#:~:text=Approximately%2042.5%20million%20Americans%20are,%25%20than%20women%20\(40%25](https://www.kff.org/womens-health-policy/fact-sheet/the-hpv-vaccine-access-and-use-in-the-u-s/#:~:text=Approximately%2042.5%20million%20Americans%20are,%25%20than%20women%20(40%25)
- HPV Vaccination. (2024). National Cancer Institute: Cancer Trends Progress Report. https://progressreport.cancer.gov/prevention/hpv_immunization#field Healthy people 2020 target
- Hanley, K.; Chung, T.H.; Nguyen, L.K.; Amadi, T.; Satnsberry, S.; Yetman, R.J.; Foxhall, L.E.; Bello, R.; Diallo, T.; Le, Y.L. (2023). Using electronic reminders to improve human papillomavirus (HPV) vaccinations among primary care patients. *Vaccines (Basel)*, 11(4), 872. <https://doi.org/10.3390/vaccines11040872>
- Meites, E.; Szilagyi, P.G.; Chesson, H.W.; Unger, E.R.; Romero, J.R.; Markowitz, L.E. (2019). *Human Papillomavirus Vaccination for Adults: Updated Recommendations of the Advisory Committee on Immunization Practices*. Centers for Disease Control and Prevention. <https://www.cdc.gov/mmwr/volumes/68/wr/mm6832a3.htm>
- Tabibi T, Barnes JM, Shah A, Osazuwa-Peters N, Johnson KJ, Brown DS. Human Papillomavirus Vaccination and Trends in Cervical Cancer Incidence and Mortality in the US. *JAMA Pediatr*. 2022 Mar 1;176(3):313-316. doi: 10.1001/jamapediatrics.2021.4807. PMID: 34842903; PMCID: PMC8630656.