

# Strategies to Improve Human Papillomavirus (HPV) Vaccination Rates Among Students at Johns Hopkins University

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## Introduction

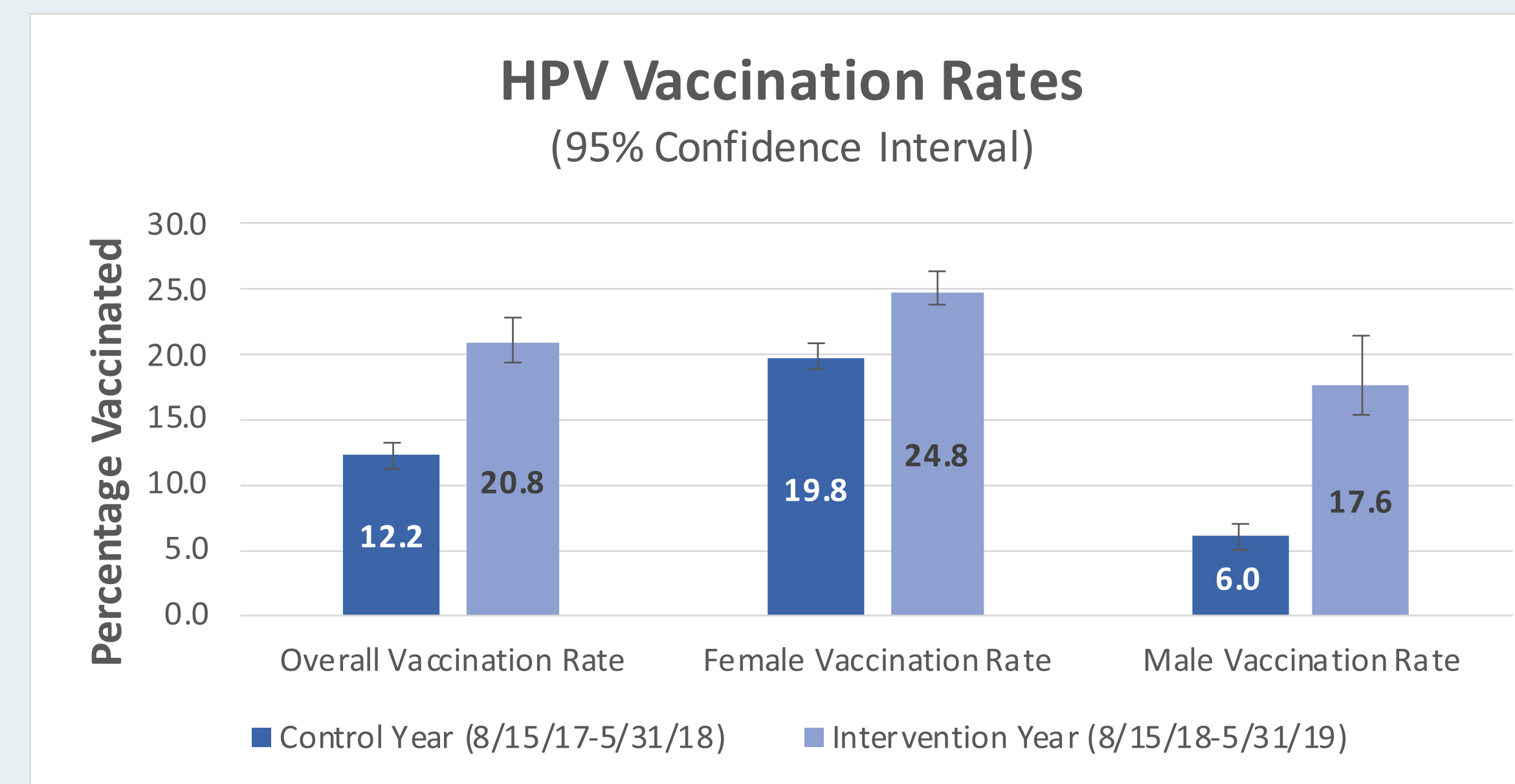
- **Study Objectives:** Increase HPV vaccination in students attending Johns Hopkins University and create a toolkit of strategies for use on other college campuses.
- HPV is the most common sexually transmitted infection in the U.S.:<sup>1</sup>
  - o 42.5% of adults have genital HPV.
  - o 7.3% of adults have oral HPV.
- Each year in the U.S., there are more than:
  - o 24,886 cases of HPV-associated cancer in females.
  - o 19,113 cases in males.<sup>2</sup>
- The 9-valent HPV vaccine has demonstrated 96.7% efficacy in preventing infection and disease related to HPV subtypes 6, 11, 16, 18, 31, 33, 45, 52, and 58.<sup>3</sup>
- The Advisory Committee on Immunization Practices (ACIP) recommends vaccination at age 11-12, with catch-up vaccination through age 26, and shared clinical decision-making for adults 27-45.<sup>4</sup>
- Uptake of the vaccine in the U.S. has not been robust:
  - o 68.1% of adolescents have > one dose, and 51.1% have completed the series.<sup>5</sup>
  - o 51.5% of adult females and 21.2% of adult males have at least one dose.<sup>6</sup>
- College health centers have the opportunity to improve HPV vaccination rates.

## Methods

- In partnership with Medical Logix, LLC, we created an HPV toolkit with the following components:
  - o Continuing medical education (CME) certified presentation.
  - o Visual Messaging Tools: customizable brochures, posters, videos, and yard signs.
  - o HPV questionnaire for patient and provider use.  
(Toolkit available at <https://www.hpv-cvc.org/>, usage free with registration, scan QR code at right)
- A CME presentation on strategies to improve HPV vaccination rates was presented to health center providers before the study period.
  - o Clinicians were encouraged to give a strong recommendation for the vaccine, focused on prevention of genital warts and cancer.
- Visual messaging on HPV was strategically placed throughout campus.
- An electronic medical record (EMR) form was initiated during self-check-in, prompting students and providers to discuss the HPV vaccine.
- Eligibility criteria:
  - o Visited the Student Health & Wellness Center (SHWC) during the study period.
  - o ≤ 26 years old.
  - o Had not already completed the HPV vaccination series.
  - o Did not have vaccine exemptions.

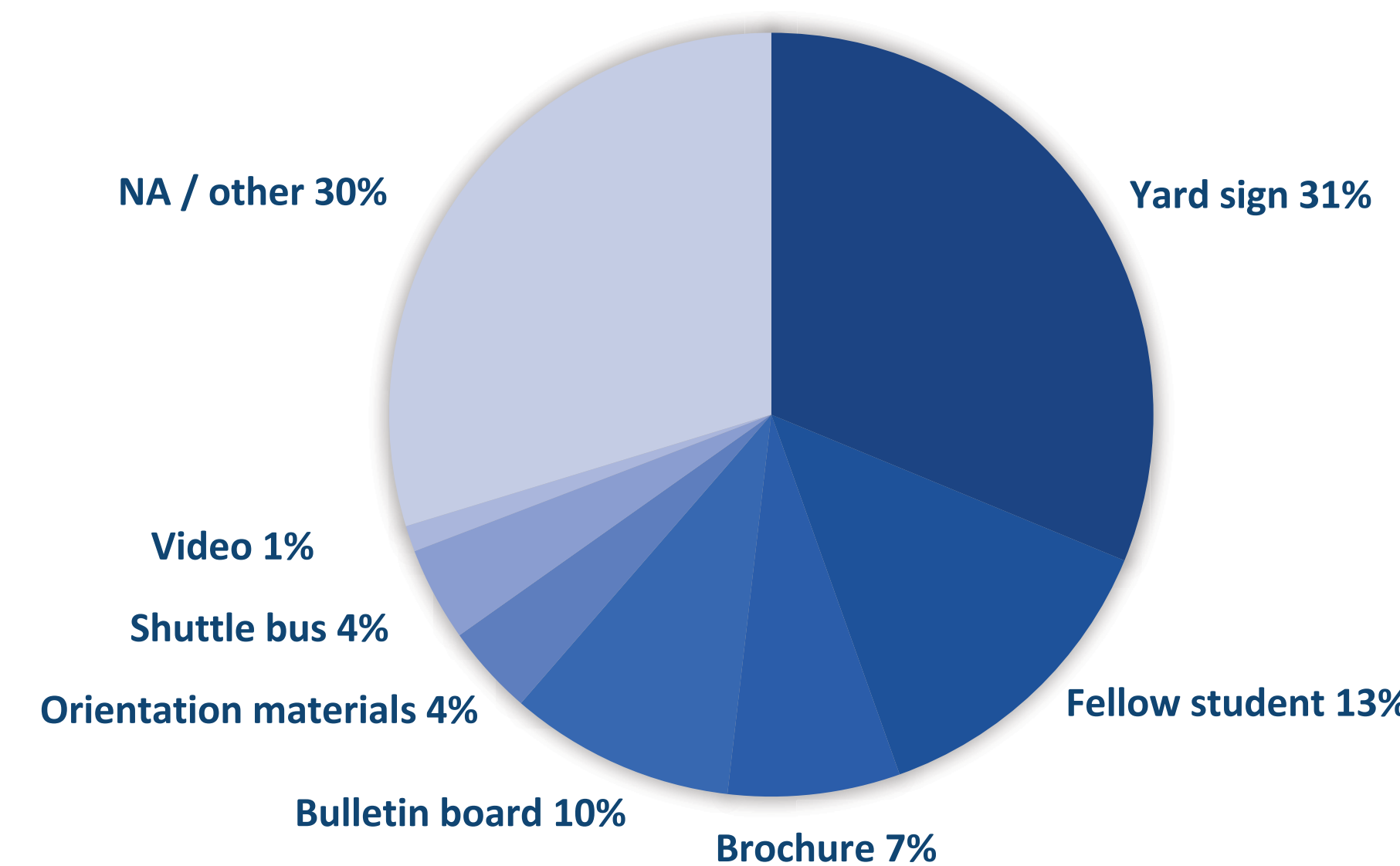


## Results



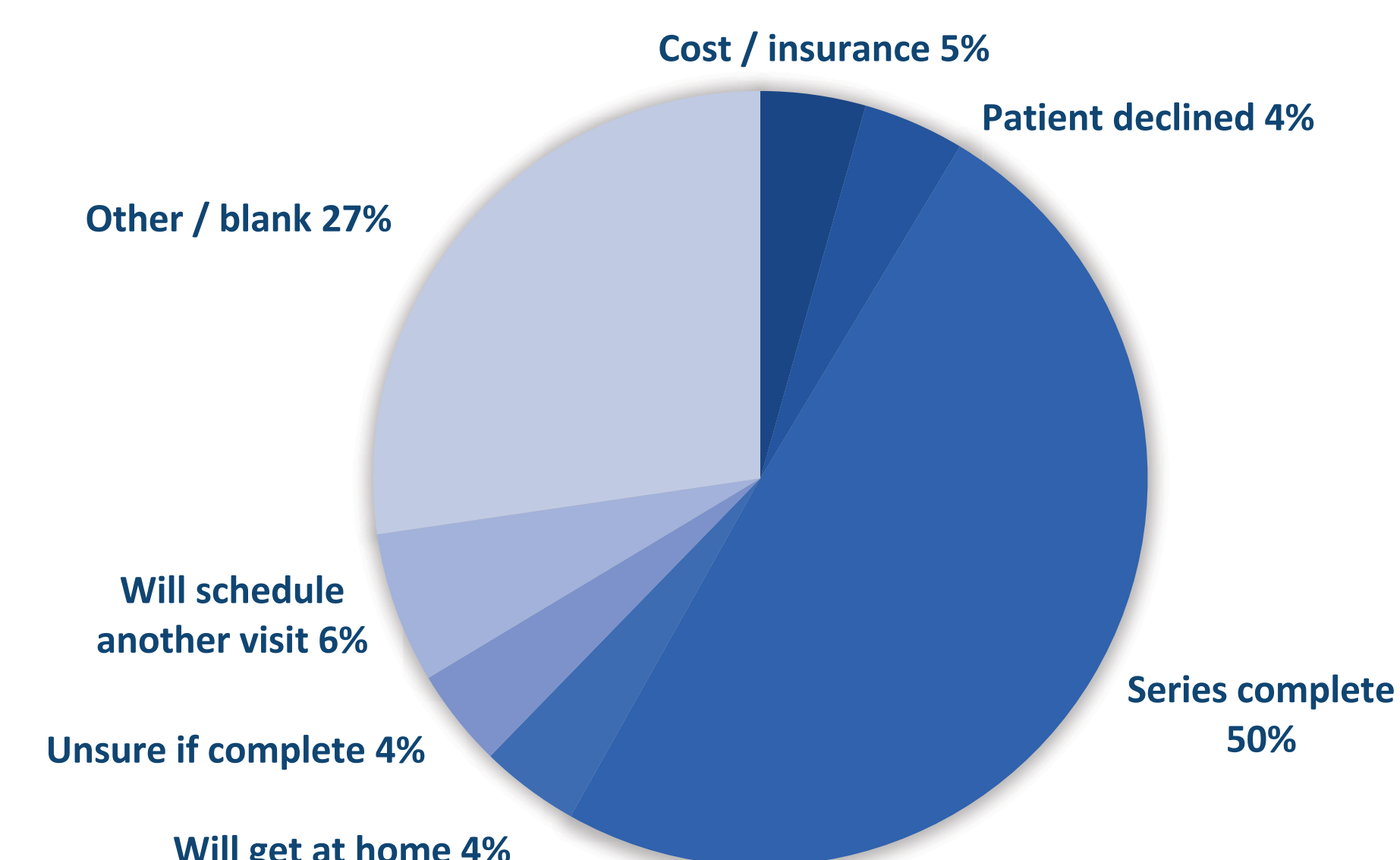
### HOW DID YOU LEARN ABOUT THE HPV VACCINE?

STUDENT ANSWERS, ON CAMPUS SOURCES ONLY  
DATA BASED ON 1,908 RESPONSES



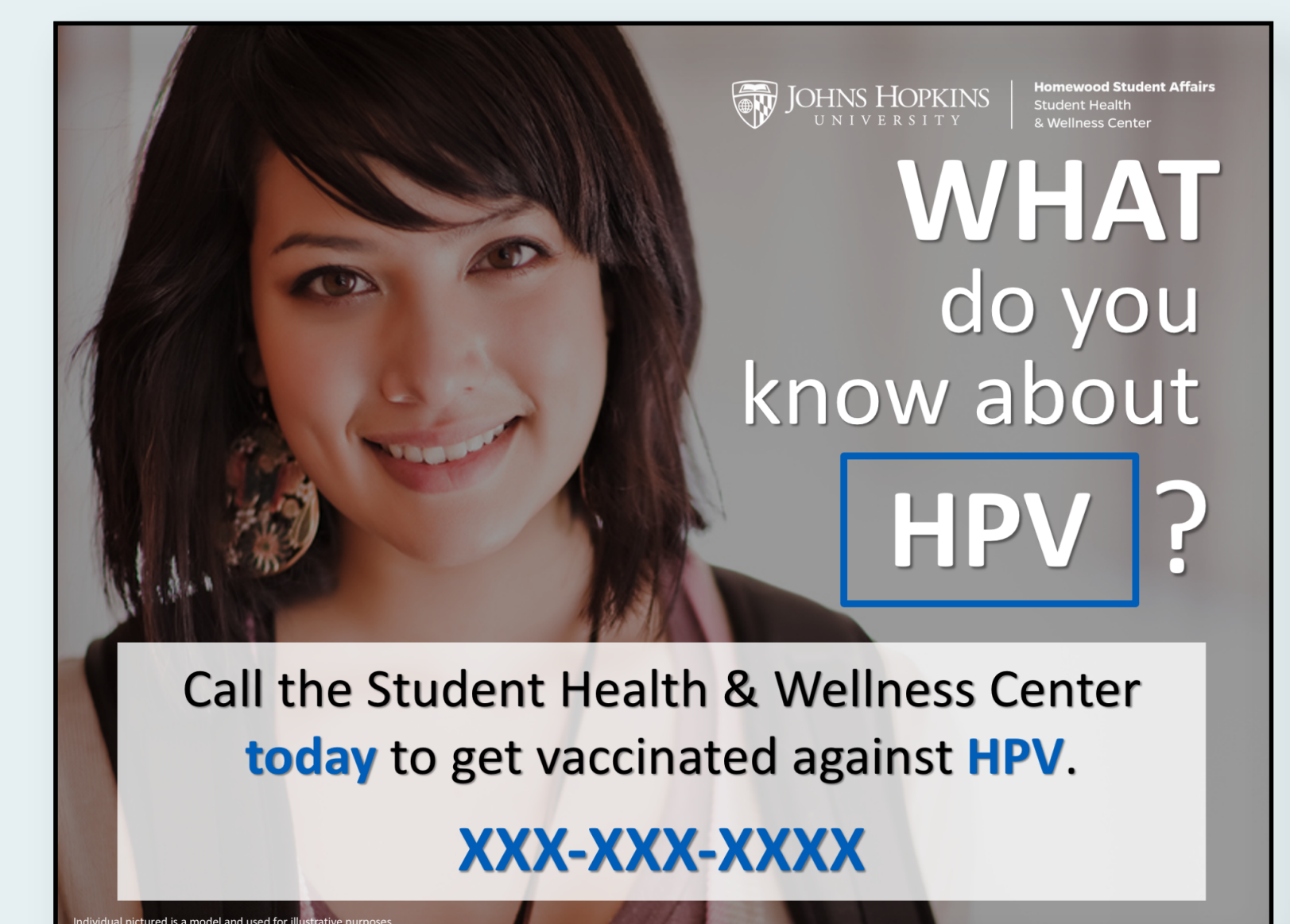
### WHY DIDN'T YOU GIVE THE HPV VACCINE?

PROVIDER ANSWERS  
DATA BASED ON 3,237 RESPONSES



## Results (cont.)

- Study period (8/15/2018 – 5/31/2019) was compared to prior year as a historical control (8/15/2017 – 5/31/2018).
- During the control period, 12.2% of students who visited the health center received at least one dose of HPV vaccine vs. 20.8% during the intervention year
  - o Relative rate of 1.70, [95% CI, 1.47 – 1.96, p < 0.001]
  - o The vaccination rate increase was highest in male students with an almost 3-fold increase, relative rate of 2.93, [95% CI, 2.27 – 3.78, p < 0.001]
- About half of the students who completed the EMR form saw the marketing materials on campus: 1,579 out of 3,237 responses.
- Of the marketing materials, the greatest number of students noticed the yard signs (596).
- The most frequently cited reason that providers did not give the HPV vaccine during their visit was that the patient already completed the HPV vaccine series (1,603).



## Discussion

- A well-coordinated campaign with extensive awareness efforts and focused clinical interventions can dramatically impact the number of HPV vaccinations on college campuses.
- Impacting HPV vaccine acceptance in college-aged adults could have a downstream effect on HPV vaccination rates for future generations.<sup>7</sup>
- Yard signs were the most noticed marketing materials.
- Prompts to discuss HPV vaccination during visits combined with a strong recommendation increased HPV vaccine administration.
- Limitations:
  - o SHWC does not accept insurance other than the student health benefits plan.
  - o Population-level data on vaccination rates has proved challenging because of incomplete vaccination records.

## Literature Cited

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