

community, meet adolescents where they are, literally, you decrease so many barriers and increase equity.

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150.

#### EVALUATION OF A NOVEL MHEALTH TOOL TO PROMOTE ADOLESCENT VACCINATION: THE VACCINE INFORMATION FOR TEENS APP (VITA)

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**Purpose:** Adolescent vaccination uptake goals are far from being met for several recommended vaccines, and, particularly, for HPV vaccine. Lack of knowledge about the vaccine and poor communication skills among vaccine providers pose a challenge to vaccine discussions, leading to poor uptake. Mobile health (mHealth) interventions have been shown to improve vaccine communication and increase vaccine uptake, but tools have not been explicitly designed to facilitate more effective patient-clinician communication at the point of care in the clinical setting. To address this need, we developed an innovative and interactive mobile app, the Vaccine Information for Teens App (VITA). The goal of this study was to pilot test and refine the VITA prototype and assess its acceptability for use in a primary care setting.

**Methods:** Semi-structured qualitative interviews were conducted with adolescents aged 11-17 years, parents, and clinicians, from 5 different pediatric primary care practices in New Haven, Connecticut. Participants were given access to VITA via mobile device or on the web through an URL or QR code. Interviews that explored perspectives on VITA were recorded, transcribed, and analyzed by two researchers using an iteratively developed codebook via the software Dedoose. Codes were organized into categories to uncover themes. Usability testing with adolescents and parents involved both qualitative and quantitative assessment by completing the following tasks: 1) Determine needed vaccines for specified age; 2) Access more information about a vaccine. The level of difficulty was scaled from 1 (very difficult) to 7 (very easy). Participants' confidence in adolescent vaccination was also measured via the Vaccine Confidence Scale (VCS).

**Results:** The sample comprised 4 adolescents, 3 parents, 2 hospital-based clinicians, and 4 private practice clinicians. Adolescents were 75% males with a median age of 14 years; 33% of clinicians identified as females. The mean VCS score was 8.75+1.51 for parents and 7.53 +0.83 for adolescents. The major themes included: 1) usability of the app: participants found the app simple and user-friendly. However, some clinicians were concerned about the level of information and infographics for patients with low literacy. 2) early access to vaccine information: reviewing vaccine information in advance could improve patient-centered communication and agenda-setting. 3) adolescent participation: VITA empowers adolescents to discuss vaccines and overall health. 4) impact on vaccine uptake: it may serve as a time-saving supplemental resource to enhance understanding of vaccines and address specific concerns. Three adolescents and one parent completed the usability testing, which demonstrated a 75% success rate with Task 1 compared to 25% with Task 2, suggestive of potential challenges with app navigation.

**Conclusions:** The use of VITA may be acceptable and beneficial in the clinical setting allowing both clinicians and families to have more productive and efficient vaccine discussions. While the impact on

vaccine-hesitant populations is less clear, it may enhance vaccine supporters' confidence in their decision-making. Future work optimizing the app and assessing its acceptability in routine primary care and telehealth is needed.

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151.

#### USING MEDICAL CLAIMS DATA TO EXPLORE MISSED OPPORTUNITIES FOR HPV VACCINATION AMONG ADOLESCENTS, AGES 11-13, IN IOWA

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**Purpose:** Despite decades of safety and effectiveness data, human papillomavirus (HPV) vaccination rates remain low, and one-third of adolescents fail to initiate the series by age 13, the age at which it should be completed. While there is extensive research on factors related to uptake, there is less known about the times that eligible adolescents do not get vaccinated (missed opportunities [MOs]). This study sought to quantify the extent of MOs among adolescents ages 11 to 13 during both preventive and acute care visits.

**Methods:** Medical claims data from years 2010 to 2017 from a large midwestern insurance provider were used to calculate total numbers of MOs between ages 11 and 13. Adolescents included had continuous health insurance enrollment born between 2001 and 2004 in Iowa for the three-year period between ages 11 and 13 (n=14,505). The creation of the MO definition was informed by input from primary care and pediatric providers to ensure that all visits that could be potential vaccination opportunities were included. MOs were divided into several categories: total, among non-initiators, occurring prior to initiation, occurring after the first dose, and occurring between the first and last dose. Two subgroup comparisons for all categories (urban vs. rural; male vs. female) were explored using t-tests.

**Results:** Overall, less than one-third of adolescents in the sample initiated the series by age 13. Females experienced significantly fewer MOs; 5.98 (SD=5.49) for females compared to 6.18 (SD=6.04) for males. For initiators, the majority of MOs occurred prior to initiation of the series, which on average, occurred at age 12; again females experienced significantly fewer MOs compared to males; means for males and females were 3.62 and 4.07, respectively. In subgroup comparisons, rural adolescents tended to have fewer MOs than their urban counterparts and females tended to have fewer MOs than males. For example, urban females had significantly more MOs overall (M=6.08) compared to rural females (M=5.85).

**Conclusions:** Results from this study highlight not only the extent of MOs, but also the utility of medical claims data in understanding patterns of adolescent health care utilization. Claims data provides a comprehensive view and level of granularity not available in other immunization data source. Future research could focus on better understanding the issue of MOs in other geographic areas or among populations with public insurance. Overall, in this sample of privately insured adolescents, it is clear that a lack of opportunity was not a barrier to HPV vaccination, as there were many opportunities in this critical age range, particularly among males and urban adolescents. Additionally, low rates of HPV vaccination have been compounded by the COVID-19 pandemic with many adolescents missing preventive care visits during the pandemic. Moving forward, it will be critical for

providers to take advantage of any opportunities to vaccinate, both acute and preventive care visits, to ensure adolescents receive the vaccines they need and reduce these MOs going forward.

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## RESEARCH POSTER PRESENTATION II: HEALTH EQUITY/PRIMARY CARE

152.

### FACTORS IMPACTING HPV VACCINATION RATES AMONG MINORITY ADOLESCENTS AND YOUNG ADULTS (AYA)

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**Purpose:** In 2018, there were 43 million Human papillomavirus (HPV) infections, majority were among adolescent and young adults (AYA). To decrease risk of HPV, individuals aged 9-26 years old should get vaccinated. However, vaccination rates have remained stagnant in the last several years. There are racial/ethnic and gender disparities in knowledge, awareness, and overall vaccine uptake. Cost of the vaccine is a barrier to vaccine uptake among uninsured AYA. The purpose of this is to examine factors impacting HPV vaccination uptake and completion rates among AYA utilizing a clinic-system located in Southeast Texas.

**Methods:** The setting was a nine-clinic system that, through state funds, provides free preventive primary and reproductive health services to >10,000 Medicaid, low-income, and uninsured AYA ages 13 – 24 years old annually. Services include free immunizations including the HPV vaccine. Majority (97.9%) of patients fall below the 250% Federal Poverty Level threshold and 96% belong to racial/ethnic minority groups. We retrospectively collected demographic information, immunization status, and billed services data among clinic AYAs from March 2018 to December 2020. We set statistical significance at  $p < 0.05$ .

**Results:** A total of 19,045 AYAs were seen between March 2018 and December 2020 with 2,258 HPV vaccines administered and 3,119 having completed their HPV vaccination series. There were statistically significant differences in HPV vaccine uptake between females and males (6.7% vs. 3.2%, respectively), minors and adults (6.9% vs. 3.1%, respectively), and between school-based and community-based clinic locations (7.8% vs. 2.1%, respectively). Around 49% of AYAs who received an HPV vaccine also received additional vaccines during their visit versus 51% who only got the HPV vaccine. Additionally, those who had any sexually transmitted infection screening during the visit had a lower HPV administration rate than those who did not have an STI screening (2.3% vs. 5.6%, respectively). A logistical regression model found age, income, sex, clinic location type and having additional vaccines given during the visit were significantly correlated with receiving an HPV vaccine ( $R^2=0.28$ ). There were statistically significant differences in series completion between females and males (17.7% vs. 12.7%, respectively), minors and adults (19.3% vs. 15.3%), and clinic location type (27.0% vs. 10.9%). A logistical regression model found age, income, sex, and clinic location type were significantly correlated with series completion ( $R^2=0.06$ ). However, both logistical

regression models had negligible to weak correlation meaning there are additional factors impacting HPV vaccination uptake and series completion.

**Conclusions:** Clinic HPV completion rates were lower than state and national averages. Some barriers may be the lack of vaccine records for AYAs that access primary care elsewhere, and health seeking behavior specifically for sexual health. The findings support policies such as removing cost barriers, and creative strategies including gender-neutral and school-based sexual health messaging that includes HPV vaccine promotion as it may provide a critical time window for AYA to get vaccinated earlier. Targeting AYA who only utilize reproductive health care may be another tactic to reach unvaccinated AYA. Future studies should explore other factors such as systems-related factors impacting HPV vaccination uptake and series completion.

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## RESEARCH POSTER PRESENTATION II: COVID/ VACCINES

153.

### AYA SUBSPECIALTY PATIENT AND PARENT VIEWS ON COVID-19 VACCINATION

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**Purpose:** Adolescents/young adults (AYA) with hematologic and oncologic (heme-onc) conditions are important targets for vaccine outreach because they are at increased risk for complications from COVID-19. AYA patients may also need additional support, as they are transitioning from parent to independent vaccine decision-making. AYA with sickle cell disease (SCD) are of particular concern because a high proportion are African American and experience structural racism in addition to their illness. Our objective was to examine AYA and parent attitudes regarding the COVID-19 vaccine among heme-onc populations.

**Methods:** As part of a larger IRB-approved study, we recruited vaccine decision-makers in pediatric SCD and oncology survivor clinics, including parents of adolescents under 18 years ( $n=35$ ), AYA patients 18-21 years old ( $n=21$ ), and parents of AYA patients 18-21 years old ( $n=14$ ). After informed consent, participants completed a demographic survey and a semi-structured interview regarding their vaccine decision-making process. Example questions included "What do you see as the benefits of the COVID-19 vaccine?" and "What are your concerns about the COVID-19 vaccine?". Saturation was reached. Interviews were audio recorded, transcribed, and analyzed using thematic analysis. Codes were developed from the literature and early interviews. Examples included "attitudes against vaccine," "medical mistrust," "hesitancy," "vaccine side effects," and "vaccine interactions with disease process." Fisher exact statistical tests were performed to analyze quantitative data.

**Results:** In SCD clinic, we recruited 31 index patients (mean age:  $15.1 \pm 3.5$  years; 30 African American and 1 Other or Mixed), yielding 11 AYA and 26 parent interviews. In survivor clinic, we recruited 26 index patients (mean age:  $16.0 \pm 3.4$  years; 20 White, 2 Hispanic or Latinx; 2 Other or Mixed, 1 African American, and 1 Asian), yielding 10 AYA and 23 parent interviews. Out of the total index patients, 8 had already received the vaccine, 13 were planning to receive it, 27