PREDICTING HUMAN PAPILLOMAVIRUS VACCINATION SERIES COMPLETION RATES: THE CASE OF NEW YORK STATE COUNTIES

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Presenter Disclosures

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No relationships to disclose

Introduction

- Genital HPV is the most common sexually transmitted infection in the US.
- Estimated 79 million Americans currently infected (most in late teens, early 20s).
- 14 million new infections per year with half occurring in women ages 15-24.
- Main concern is cervical cancer but is also known to cause oral, anal, vulvar, vaginal and penile cancers in addition to genital warts.
- HPV vaccine produces a higher immune response from adolescents ages 11-12 than in older teens.

HPV and Associated Cancers

Average Number of New HPV-associated Cancers Overall, and by Sex, in the United States, 2005-2009

Rationale

- Cost: financial, to families, to society
  - In 2010, the annual burden for prevention screening and treatment of HPV related diseases is estimated at 8 billion for the United States as a whole
  - HPV vaccination prevents 70% of cervical cancer, 90% genital warts and 90% non cervical HPV associated cancers
  - Costly to families who struggle to meet the increased costs of medical management (Co-pays and deductibles), missed days from work due to increased number of provider visits, potential loss of fertility and potential loss of life.
  - Costly to society because if the vaccine rates do not increase, the direct and indirect cost of disease management will remain high

Vamos et al., 2008
Significance

- Despite availability of two FDA approved vaccinations, HPV vaccine completion rates lag behind other routine adolescent vaccinations.
- Only one third of all adolescents in the US have received the full dose series.
- Since 2006 when the vaccine was first introduced, vaccine-type HPV prevalence has decreased by 56% among 14-19 year old females.

Contributing Factors: Individual Level

Affordability
- $285 – $390/ Vaccination Series
- Lack of insurance coverage
- Co-Pay for each visit

Availability
- 3 dose series
- Requires 3 visits to office
- Missed opportunity to vaccinate if no well visit

Acceptability
- STD Vaccine Stigma
- Lack of Knowledge: Parent, Provider
- Opposition: Medical, Moral, Religious

Contributing Factors: System Level

Availability
- No NYS school entry requirement
- Time Constraints during office visit

Affordability
- Socioeconomic Status
- Insurance Coverage
- Provider Service Factors

Acceptability
- Racial/Ethnic Disparities
- Rural vs Urban

Purpose

- Identify which socioeconomic, demographic or provider service factors influence HPV vaccination rates in New York State counties.
- Provide appropriate policy recommendations to help increase HPV vaccination completion rates in New York State counties.

Research Questions

- Examination of predictors was conducted to answer the following research questions:
  - What is the relationship between
    - demographic factors
    - socioeconomic factors
    - level of health services
  - HPV vaccination completion rates among 13-17 year old female adolescents in NY State counties?
Methodology

- **Design and Sample:**
  Ex post facto analysis of a secondary data set utilizing a descriptive correlational design.

- **Data set and Data Sources:**
  Data were obtained at the county level for 57 counties, excluding NYC, in NY using public domain websites:
  - New York State Department of Health
  - Census Bureau
  - New York State Education Department
  - United States Department of Agriculture
  - USDA Economic Research Service

Predictors

- **Variables from the data set were grouped theoretically into:**
  - **Demographic predictors:**
    - Level of Rurality of county
    - % Black population
    - % Hispanic population
    - % White population

Predictors

- **Socioeconomic predictors:**
  - % poverty for all ages
  - rate of unemployment by thousands
  - % Medicaid coverage
  - % Low income children
  - Chlamydia prevalence rate
  - median income
  - % high school dropout rate

- **Health service predictors:**
  - NPs per 1000 population
  - MDs per 1000 population

Hypotheses

- **Those counties in NY that have:**
  - higher rural rankings
  - higher minority population rates
  - lower percentages of Medicaid eligible population
  - higher percentages of population under the poverty line
  - lower levels of education
  - higher rates of unemployment
  - lower Chlamydia rates
  - lower percentages of low income children
  - lower median incomes
  - fewer NPs/MDs
  
  will have lower rates HPV Vaccination

Summary of Correlational Findings

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<thead>
<tr>
<th>Predictors</th>
<th>Outcome Variable</th>
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<tbody>
<tr>
<td>rural rankings</td>
<td>√*</td>
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<tr>
<td>% white</td>
<td>√*</td>
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<tr>
<td>% Medicaid eligible population</td>
<td>-*</td>
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Summary of Stepwise Multiple Regression Findings

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Note:
- √ = relationship is expected direction
- √* = relationship significant, in expected direction
- - = relationship not in expected direction
- -* = relationship significant, not in expected direction
- r = Pearson’s r under .10
Findings & Policy Recommendations

- **Rurality:** Those counties that are more rural have lower HPV vaccination completion rates.
  - Increase availability, affordability and acceptability of the HPV vaccine in rural counties of New York State.
- **Chlamydia:** Those counties that have higher chlamydia prevalence rates have higher HPV vaccination completion rates.
  - Offer HPV vaccination during routine STD testing/treatment

Findings & Policy Recommendations

- **Medicaid Populations:** The higher the percent of Medicaid enrollees, the lower the HPV vaccination completion rates.
  - Focus on preventative health strategies among the Medicaid enrollees.
- **Ethnic variations:** The higher the percent of non-white populations, the lower the HPV vaccination completion rates.
  - Focus on increasing outreach efforts to promote health education among minorities.
  - Reduce perceptions of stigmatization and discrimination.

Findings & Policy Recommendations

- **Income:** The higher the median income, the lower the HPV vaccination completion rates.
  - Increase availability of the HPV vaccine coverage by private insurance companies.
  - Reduce the misconception of non-susceptibility among wealthier populations
- **Health Services:** The higher the number of nurse practitioners, the higher is the HPV vaccination completion rates.
  - Provide funding for increase health work force, particularly for NPs.

Conclusion

- HPV vaccination completion is a complex and multifaceted phenomena.
- Our analyses revealed that **AVAILABILITY, ACCESSIBILITY, and ACCEPTABILITY** all have to be present to improve completion rates of HPV vaccination.
- This study highlights the significance of the unique nursing perspective in the analyses of aggregate data for public health.

THANK YOU

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