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

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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.

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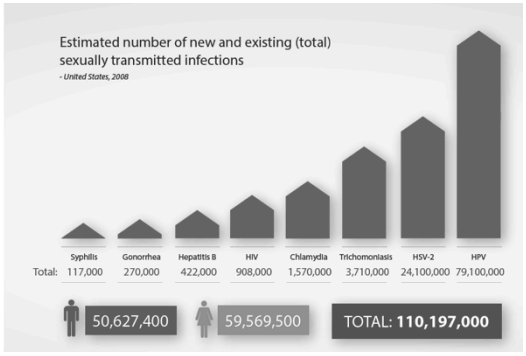
http://www.cdc.gov/std/hpv/
http://kff.org/womens-health-policy/fact-sheet/the-hpv-vaccine-access-and-use-in/#endnote_link_126366-2



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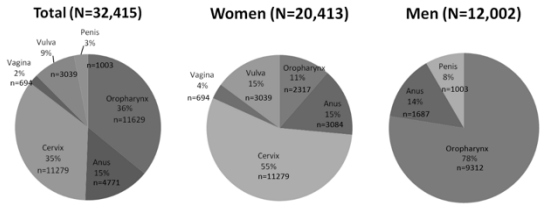
http://www.cdc.gov/std/stats/sti-estimates-fact-sheet-feb-2013.pdf

HPV and Associated Cancers

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



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Jemal A et al. J Natl Cancer Inst 2013;105:175-201

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

http://www.wacancer.org/portals/0/ChessonEtAlHPV_burden_Vaccine_2012.pdf

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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.

http://www.cdc.gov/std/hpv

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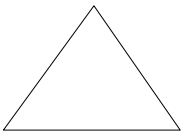
Contributing Factors: Individual Level

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

http://www.cdc.gov/std/hpv
http://deainfo.nci.nih.gov/advisory/pcp/annualReports/HPV/Part5.htm#sthash.zTTA4TIa.JeCKmXDJ.dpbs
http://kff.org/womens-health-policy/fact-sheet/the-hpv-vaccine-access-and-use-in/#endnote_link_126366-2

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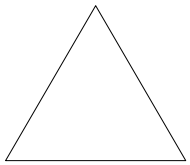
Contributing Factors: System Level

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

http://deainfo.nci.nih.gov/advisory/pcp/annualReports/HPV/Part5.htm#sthash.zTTA4TIa.JeCKmXDJ.dpbs
http://kff.org/womens-health-policy/fact-sheet/the-hpv-vaccine-access-and-use-in/#endnote_link_126366-2

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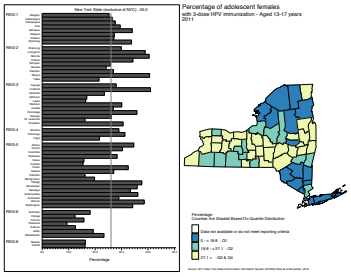
HPV Vaccination Rates by NYS Counties



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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.

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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

    AND

    - HPV vaccination completion rates among 13-17 year old female adolescents in NY State counties?

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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

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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

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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
  - higher percentages of low income children
  - lower median incomes
  - fewer NPs/MDs

  will have lower rates HPV Vaccination

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Summary of Correlational Findings

Predictors	Outcome Variable HPV Vaccination Rates

Note. - = relationship not in expected direction
-* = relationship significant, not in expected direction
√ = relationship in expected direction
√* = relationship significant, in expected direction
nr = Pearson's r under .

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Summary of Stepwise Multiple Regression Findings

Predictors	Outcome Variable HPV Vaccination Rates (Adj. R^2=.35)
rural rankings	√*
% white	√*
% Medicaid eligible population	-*
% Chlamydia	√*
median income	-*
NPs per 1000	√

Note - = relationship not in expected direction
-* = relationship significant, not in expected direction
√ = relationship in expected direction
√* = relationship significant, in expected direction
nr = Pearson's r under .10

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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

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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.

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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.

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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.

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THANK YOU

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