**Human Papilloma Virus Vaccine Long Island Mapping Study Plans**

**Background:**

* It is mandated to report to the New York Immunization Information System (NYSIIS) children up to age 18 who have received any vaccines.
* Some (but not all) health care providers will report vaccination of adults over age 18 to NYSIIS
* The HPV (Human Papilloma Virus) vaccine is NOT a school mandated vaccine, whereas TDAP (Tetanus, Diphtheria and Acellular Pertussis) vaccine IS a school mandated vaccine.
* HPV vaccine recommendations are as follows (according to the CDC - <https://www.cdc.gov/vaccines/vpd/hpv/hcp/recommendations.html>, accessed 11/8/2023):
  + HPV vaccine is recommended for routine vaccination at age 11 or 12 years. (Vaccination can be started at age 9.)
  + ACIP also recommends vaccination for everyone through age 26 years if not adequately vaccinated when younger. HPV vaccination is given as a series of either two or three doses, depending on age at initial vaccination.
  + Vaccination is not recommended for everyone older than age 26 years. Some adults ages 27 through 45 years might decide to get the HPV vaccine based on discussion with their clinician, if they did not get adequately vaccinated when they were younger. HPV vaccination of people in this age range provides less benefit, for several reasons, including that more people in this age range have already been exposed to HPV.
  + For adults ages 27 through 45 years, clinicians can consider discussing HPV vaccination with people who are most likely to benefit. HPV vaccination does not need to be discussed with most  adults over age 26 years. See ACIP’s [shared clinical decision-making FAQs](https://www.cdc.gov/vaccines/acip/acip-scdm-faqs.html).
* Vaccine dosage schedules are as follows (according to the CDC - <https://www.cdc.gov/vaccines/vpd/hpv/hcp/recommendations.html>, accessed 11/8/2023):
  + Two doses of HPV vaccine are recommended for most persons starting the series before their 15th birthday.
    - The second dose of HPV vaccine should be given 6 to 12 months after the first dose.
    - Adolescents who receive two doses less than 5 months apart will require a third dose of HPV vaccine.
  + Three doses of HPV vaccine are recommended for teens and young adults who start the series at ages 15 through 26 years, and for immunocompromised persons.
    - The recommended three-dose schedule is 0, 1–2 and 6 months.
    - Three doses are recommended for immunocompromised persons (including those with HIV infection) aged 9 through 26 years.
* Gardasil vaccine was approved in the US in 2006 and it prevented four strains of high risk HPV (HPV 6, 11, 16, and 18). Cervarix vaccine was approved in 2007 and prevented two strains (HPV 16 and 18) and Gardasil 9 was approved in 2014 and it prevents nine strains of HPV (HPV 6, 11, 16, 18, 31, 33, 45, 52, and 58) . Source: <https://www.nomancampaign.org/post/the-history-of-the-hpv-vaccine#:~:text=The%20HPV%20vaccine%20was%20first,vaccine%20would%20later%20be%20made>. Accessed 11-8-2023.
* The Distressed Communities (DCI) Index is a tool for measuring the comparative economic well-being of U.S. communities and helps illuminate ground-level disparities across the country. The DCI is derived from the U.S. Census Bureau’s Business Patterns and American Community Survey 5-Year Estimates for 2016-2020, and sorts zip codes into quintiles of well-being: prosperous, comfortable, mid-tier, at risk, and distressed. In all, the DCI captures more than 99 percent of the U.S. population and 26,000-plus zip codes with at least 500 residents. (Source: <https://eig.org/distressed-communities/> Accessed 11-8-2023).

Research questions:

* Does the zip code matter with regard to children receiving the HPV vaccine?
* Does the Distressed Communities Index answer the question as to whether socioeconomic factors may impact the rates of immunization with HPV vaccine?

Research Methodology:

* Use the New York State Immunization Information System (NYSIIS) database of those who have had either an HPV or a TDAP vaccine from years (X to XX)
* Use the DCI Index and analyze using two date ranges:
  + 2007-2011
  + 2012-2016
* Include:
  + NYSIIS entries for those listed with zip codes in Nassau and Suffolk Counties
  + Any vaccination entries listed for individuals who had TDAP
* Exclusions:
  + Any listings in the database for individuals whose ages were <9 or >26 at the time of the first vaccination with TDAP.
  + Any listings for individuals whose zip code of residence is not within Nassau or Suffolk Counties in New York State.

Analyses to perform:

* Determine HPV vaccination rates in each of Nassau County, Suffolk County and both counties combined (“Long Island”) as follows:
  + AT LEAST ONE DOSE HPV:
    - Numerator: unique individuals with HPV vaccine >= 1 dose (first dose given ages >9 and <27)
    - Denominator: unique individuals who have received TDAP who are ages >9 and <27
    - Geocode map with zip codes
    - Compare rates by zip codes with DCI Index value for each zip code
  + COMPLETED HPV VACCINE SERIES OF 2 OR 3 DOSES (DEPENDING ON AGE WITH FIRST DOSE):
    - Numerator: unique individuals with HPV vaccine >2 doses (first dose given ages >9 and <14) PLUS unique individuals with HPV vaccine >3 doses (first dose given ages >14 and <27)
    - Denominator: unique individuals who have received TDAP who are ages >9 and <27
    - Geocode map with zip code
    - Compare zip code with DCI Index value