Virginia Department of Health Summer Internship Academy 2023
Alexandria Health Department
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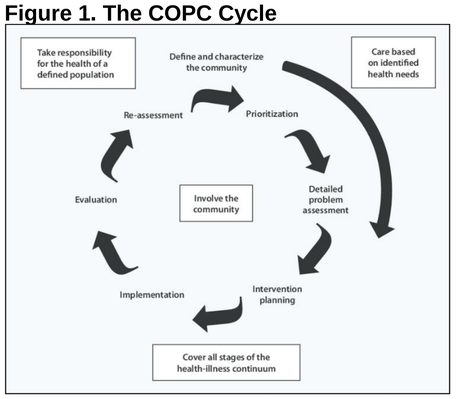
Exploring Community-Oriented Primary Care (COPC) Strategies for Increasing HPV Vaccination in Alexandria

Project Goals:

- Calculate Alexandria's Human Papillomavirus (HPV) vaccination rate using data obtained from the Virginia Department of Health (VDH) School Immunization Status (SIS) Reports.
- Conduct a literature review to identify barriers to vaccination.
- Explore using COPC strategies to increase vaccination. The COPC Cycle (**Figure 1**) emphasizes community involvement in every step of the intervention.

Figure 1. The COPC Cycle



Source: American Public Health Association, 1998; Chen et al., 2010

Key Takeaways:

- Barriers to HPV vaccination identified in the literature:
  - Inadequate or nonexistent provider recommendation
  - Lack of provider knowledge/confidence
  - Parental knowledge/perceptions
- Based on our calculations, using data obtained from VDH's 2022 SIS report, only **37.4%** of 12th grade students in Virginia and 61.9% of 12th grade students in Alexandria were up-to-date on their HPV vaccine. In comparison, the NIS-Teen survey found that **61.1%** of 13- to 17-year-olds were up-to-date in 2021 (CDC).

Lessons Learned:

- Rates calculated using SIS data differ significantly from national estimates.
- Absence of reliable local data cloud our understanding of HPV vaccination uptake and coverage.
- The COPC model can be used to develop and implement a community-based intervention to increase HPV uptake and completion rates in Alexandria.

Summer Internship Academy Experience Overview

While interning at the Alexandria Health Department (AHD), I learned about the local health department's efforts to improve the community's health and the role epidemiologists have in supporting AHD's mission. I also had the opportunity to gain a better understanding of what other divisions and teams at AHD do to protect the health and wellbeing of Alexandrians. In addition to shadowing colleagues, I had the opportunity to apply my public health knowledge to ongoing projects, complete two independent projects, and grow my data analytics skills. By the end of my internship, I gained a well-rounded understanding of how the state and local health department use an interdisciplinary approach to protecting the wellbeing and health of all Virginians.

Experience Highlights:

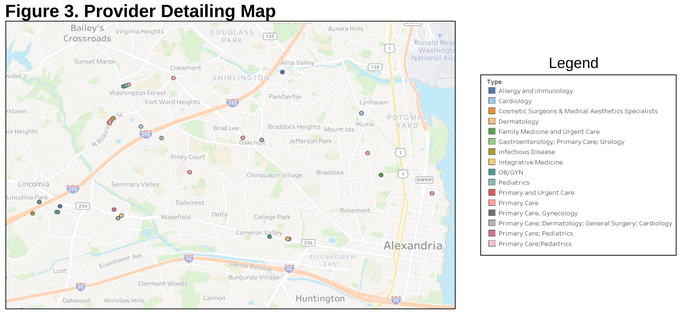
- Participated in a community outreach event in Del Ray (**Figure 2**)
- Shadowed a restaurant inspection
- Shadowed nurses in AHD's Sexual and Reproductive Health Clinic
- Attended a NOVA STI/HIV Task Force meeting
- Assisted with a vibrio investigation
- Attended a VDH Quarterly Epidemiology meeting
- Toured Virginia's Division of Consolidated Laboratory Services
- Completed two projects (one on HCV and one on HPV)
- Attended an Excel Data Visualization Workshop
- Utilized Data Camp to build foundational understand of Tableau
- Created a map of healthcare providers in Alexandria (**Figure 3**)
- Created a REDCap of VDH's Childhood Lead Assessment
- Created a REDCap survey about immunization for childcare providers

Lessons Learned:

- While working on my individual projects, I learned about the limitations that occur when collecting data for large data systems.

Figure 2. Community Outreach
My mentor and I tabled with Medical Reserve Corps (MRC) volunteers at First Thursdays in Del Ray. We distributed educational materials on emergency preparedness, AHD programs, and recruited new MRC volunteers!

Figure 3. Provider Detailing Map



Understanding the Burden of Chronic Hepatitis C (HCV) in Alexandria

Project Goals:

- Clean and analyze Alexandria's Chronic HCV case data obtained from the Virginia Electronic Disease Surveillance System (VEDSS).
- Create data visualizations and maps to characterize the burden of Chronic HCV in Alexandria.
- Explore barriers to and availability of treatment in Alexandria.

Key Takeaways:

- As shown in **Figure 4**, Alexandria's HCV incidence rate declined steadily from 2017 (99.5 cases per 100,000 persons) to 2022 (40 per 100,000 persons).
- In 2020, Alexandria's HCV incidence rate of 47.9 cases per 100,000 persons was higher than Virginia's rate of 45.2 cases per 100,000 persons and the national rate of 40.7 cases per 100,000 persons (CDC, 2022).
- As shown in **Figure 5**, visualizing HCV data by age group revealed a bimodal distribution in Alexandria.
- Using Excel's 3D Map software, there was no significant spatial clustering of cases.

Lessons Learned:

- Major barriers to HCV treatment include health insurance restrictions, age, provider hesitancy, and cost.
- In 2020, the CDC recommended universal screening for HCV.
- HCV is not currently investigated by AHD epidemiologists, so there is a lot of race and ethnicity data missing.

Figure 4. Incidence Rate of Chronic HCV Cases in Alexandria (2017-2022)

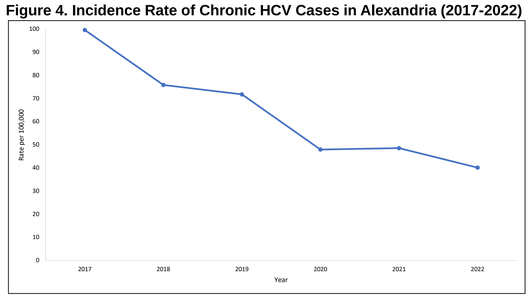


Figure 5. Age Distribution of Chronic HCV Cases in Alexandria (2017-2022)