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How Interprofessional Community Mobile Healthcare and Service-Learning Work Together to Identify and Address Chronic Health Disparities

Emma Mathias;[1] Peyton Free;[2] Abby Storm, MS;[3] Heather Milea, MSN, FNP-BC, AGACNP-BC;[4] Christine Sowinski, MSM;[5] and Jennifer A. Horney, PhD[6]

1. Graduate Research Assistant, Epidemiology Program, University of Delaware

2. Graduate Research Assistant, Partnership for Healthy Communities, University of Delaware

3. Graduate Research Assistant, Epidemiology Program, University of Delaware

4. Nurse Practitioner, HEALTH for All Program, University of Delaware

5. Project Coordinator, HEALTH for All Program, University of Delaware

6. Professor and Founding Director, Epidemiology Program, University of Delaware

Abstract

Background: Residents of the State of Delaware experience high levels of health inequities. Service-learning programs provided jointly by universities and community partners can address health disparities through documentation of disparities and service provision that sees patients where they are. Benefits accrue for both students and communities experiencing health inequities. **Methods:** HEALTH for All (H4A) mobile unit clients can receive a variety of services at sites co-located with community based organizations (CBOs). Between September 2023 and January 2024, H4A clients had their blood pressure assessed by a trained healthcare provider. Demographic and ZIP Code of residence data were collected by a trained graduate student. Data were recorded and analyzed using Microsoft Excel Version 16.5 (Redmond, WA, USA). All documentation was reviewed and approved by the University of Delaware's Institutional Review Board (IRB #1567044-3). **Results:** Between September 2023 and January 2024, 152 clients participated. Most participants were female (72.27%; 104 of 143) and identified as White (68.66%; 92 of 134). The largest group of clients were in Stage 1 Hypertension (34.21%; 52 of 152), followed by Elevated (23.68%; 36 of 152), Normal (22.37%; 34 of 152), and Stage 2 Hypertension (19.74%; 30 of 152). Black or African American clients had higher systolic and diastolic blood pressure compared to other racial and ethnic groups. There were also differences in the share of clients with hypertension by ZIP Code of residence. **Conclusions:** Interprofessional service-learning in a mobile health context provides students with practical field experience and real-world insights into community perspectives and needs, including addressing health inequities. Academic-community partnerships and mobile health programs should be prioritized in the future to address health inequities and foster the development of socially engaged, community-minded future professionals.

Introduction

Delaware ranks thirty-first among all states in overall health and in the bottom half of all states for indicators of overall health, including exposure to air pollution, child poverty, physical inactivity, and infant mortality.[1] Residents of Delaware experience high levels of health inequities, particularly racial and ethnic minorities living in the cities of Wilmington and New Castle.[2] For example, the prevalence of chronic diseases among African Americans is higher

than any other racial group in Delaware. More than 28% of African Americans live with chronic diseases such as diabetes, cardiovascular diseases, and asthma, leading to disparities in mortality from diabetes, kidney disease, and hypertension.[3] Similarly, persistent disparities in Black infant and maternal mortality are linked to residence in high-risk ZIP Codes in Wilmington and New Castle.[4]

One approach to addressing health inequities is through academic-community service-learning programs.[5] For example, the University of Arizona has service-learning programs that focus on serving populations that face disparities, including undocumented individuals, persons experiencing homelessness, the elderly, and those who identify as lesbian, gay, bisexual, or transgender.[6] Asian-American community groups partnered with a midwestern university's student volunteer program to train students to provide culturally competent preventive care to residents of Chicago's Chinatown.[7] In addition to community benefits, students also benefit from these academic-community service-learning placements. Public health students reported an increased interest in working in governmental public health.[8] Nursing students placed in an emergency housing facility reported perceived future career benefits from the opportunity to work in community placement.[9]

Another approach to addressing inequities is the use of alternative types of community-based interventions such as mobile healthcare clinics to deliver direct care and services. Among mobile health clinics in the U.S. from 2007 – 2017, 35% of the clients were black and 27% were Latinx or Hispanic.[10] Other populations served by mobile health include the uninsured, those living in poverty or experiencing homelessness, and migrant populations. Service-learning in a mobile health context can provide opportunities for university-community partnerships to address health inequities. At the same time, these models give students experience in providing socially engaged community care that may spark an interest in a career in health equity or assist students with building a professional network among those working to address health inequities.[11] For example, physician assistants participating in a mobile clinic rotation reported a better understanding of medical needs and the intricacies of treating individuals experiencing homelessness.[11] Following participation in the Oral Health on Wheels mobile clinic, dental hygiene students reported increased learning, confidence in skills, and personal growth around working with underserved populations.[12]

In partnership with the Highmark Blue Cross Blue Shield of Delaware's BluePrints for the Community Program and more than 20 community-based organizations (CBOs), the University of Delaware's College of Health Sciences' Partnership for Healthy Communities established a mobile health service-learning program called Health, Engagement, Access, Learning, Teaching, Humanity for All (HEALTH for All) to address gaps in access to care among underserved populations in Wilmington and New Castle, Delaware. The program placed interprofessional students from clinical and non-clinical programs across the university in a mobile health unit (MHU) with a program manager and a nurse practitioner. In addition to providing care, the program was also designed to offer students hands-on experience to build interprofessional skills related to addressing health equity issues in community settings that may inform the focus of their future careers. This paper reports on a HEALTH for All project designed to assess health inequities around hypertension in New Castle County, Delaware.

Methods

The MHU visits more than 20 CBO partner sites including community centers, senior centers, libraries, churches, and barber shops on a rotating schedule and provides basic healthcare services (e.g., screening, primary care services, chronic disease monitoring) and referrals for follow-up care when needed. When clients have completed their interactions with the healthcare provider, a trained graduate student approaches them and asks if they are willing to complete a brief demographic and self-rated health perceptions survey. Beginning in September 2023, a separate 5-question survey was administered that included age, gender, race, ZIP Code of residence, and blood pressure. Responses were recorded and analyzed in Microsoft Excel Version 16.5 (Redmond, WA, USA). All surveys and other documents were reviewed and approved by the University of Delaware's Institutional Review Board (IRB #1567044-3).

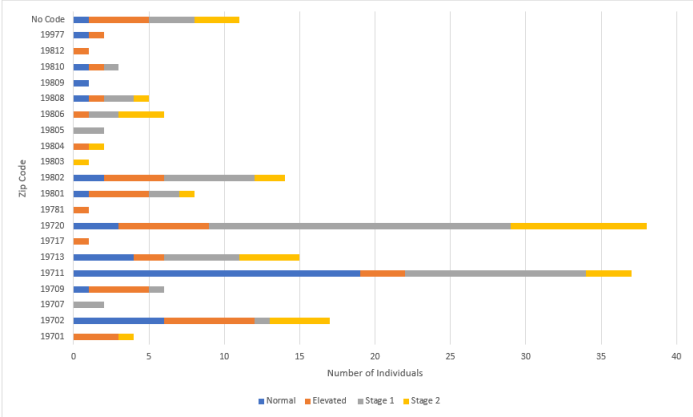
Results

One hundred and fifty two HEALTH for All clients completed the 5-question survey between September 2023 and January 2024. The mean age of respondents was 60 years (Range: 19-93). Most participants were female (72.27%; 104 of 143) and identified as White (68.66%; 92 of 134).

Elevated Blood Pressure is defined as a reading between 120 and 129 systolic and <80 diastolic. Stage 1 Hypertension is when the reading is between 130 and 139 systolic or 80 to 89 diastolic while Stage 2 Hypertension is when the reading is ≥140 systolic or ≥90 diastolic. Delaware ranks thirty-ninth out of the fifty U.S. states in terms of the percentage of adults who have been told by a health professional that they have high blood pressure.[1] In the U.S. and in Delaware, non-Hispanic blacks have the highest rate of hypertension compared to non-Hispanic Whites and Asians.

More than one-third of HEALTH for All clients assessed were in Stage 1 Hypertension (34.21%; 52 of 152), while around a quarter had either Elevated (23.68%; 36 of 152) or Normal (22.37%; 34 of 152) blood pressure. One in five (19.74%; 30 of 152) had Stage 2 Hypertension. Black or African American clients had higher diastolic and systolic blood pressure overall compared to other racial and ethnic groups and clients who reported the residential ZIP Code of 19720 were most likely to have Stage 1 or 2 Hypertension (29 of 38; 76.3%, Figure 1).

Figure 1. Hypertensive Status by ZIP Code, New Castle County, DE, September 2023 – January 2024



Conclusions

Cardiovascular diseases are the leading cause of death in the U.S. and in Delaware. Racial minorities and those living in areas characterized by poverty have a higher prevalence of unrecognized risk factors for coronary diseases. Public health interventions that target majority-minority communities are essential to addressing cardiovascular disease disparities by race in Delaware and the U.S. To carry out these interventions, current students – who are future professionals – can benefit from seeing how social, economic, and political factors impact health through a health equity lens.[4,6] While MHUs can help ensure access to care and document barriers and inequities, longer-term and lasting improvements in health equity in these contexts will require additional investments and interventions to provide evidence of measurable changes in health outcomes.

Public Health Implications

Delawareans experience high levels of health inequities that may be more effectively addressed through approaches that include evidence-based interventions to reduce health disparities including mobile health and service-learning. This paper describes an example from a University of Delaware mobile health program serving vulnerable populations in New Castle County through community engagement and student experiential learning. More evidence is needed to demonstrate how Social Determinants of Health-driven educational experiences can improve patient health equity through access, care coordination, and training the future public health and healthcare workforce to be actively engaged in addressing these issues.

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