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Original Study

Evaluation of a Preventative Health Consultation Service for Patients at Student-Run Walk-In Health Clinics

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Abstract

Background: Preventative health services are often underutilized by under-resourced populations. This study aimed to evaluate the utility of a student-run preventative health consultation (PHC) service at free walk-in clinics.
Methods: This prospective cohort study recruited adult participants from student-run free walk-in clinics at a Spanish-language church and a homeless shelter. During the PHCs, recommendations from the United States Preventative Services Task Force and Centers for Disease Control and Prevention immunization schedule were discussed with participants. The top three recommendations for each participant were prioritized using shared decision-making. Participants completed a post-PHC survey and were contacted within three months about recommendation completion status. Recommendations were grouped into categories and analyzed using descriptive statistics.
Results: Of the 29 people enrolled in the study, 48% (n=14) were Spanish-speaking, and 45% (n=13) were homeless/displaced. There were 87 recommendations made and categorized as health behaviors (29.9%, n=26), vaccinations (18.4%, n=16), chronic disease screenings (18.4%, n=16), communicable disease screenings (17.2%, n=15), cancer screenings (11.5%, n=10), and other (4.6%, n=4). The most common completed recommendations were changes in health behaviors (46.2%, n=12) and chronic disease screenings (37.5%, n=6). Of the participants who completed the post-PHC survey, 96% (n=27) agreed or strongly agreed they learned new information about their health from the PHC, and 100% (n=29) reported being glad to have engaged in the PHC and that the PHC service should continue at the monthly clinics.
Conclusions: Health behaviors, vaccinations, and chronic disease screenings were the most frequently prioritized preventative health needs. Student-run PHC services may offer a way to increase underserved patient knowledge and engagement with preventative healthcare.

Introduction

Preventative healthcare has been defined as the proactive approach to prevent the introduction or progression of a chronic condition.[1] The majority of adult Americans have at least one chronic condition, and chronic diseases are leading drivers of healthcare costs in the United States (US).[1-4] Preventative health screenings and consultations implemented in primary care settings have demonstrated an ability to increase patient life expectancy, decrease overall healthcare utilization and costs, and increase patient motivation to implement healthy lifestyle behaviors.[4-6] In a recent investigation of homeless women in Boston, Papanicolaou test rates increased significantly following a multi-step intervention to increase education about cervical cancer screenings.[7] In New York, a study with the Hispanic population found that 52% of participants

screened in community health fairs subsequently sought medical care when action was recommended.[8] Following a quality improvement intervention at a student-run free clinic in California, rates of depression screenings and treatment increased.[9] Additional studies of preventive health interventions support these outcomes, showing that patients are more likely to engage with health services and modify identified risk factors following health education.[10-14]

It is estimated that only 8% of adults in the US aged 35 or older receive all recommended preventative services. Use of preventive services is even lower in marginalized groups; these groups are more likely to encounter barriers to care and less likely to seek healthcare services.[10,15-17] A previous study found that the three main causes of mortality in the homeless population are drug overdose, cancer, and heart disease—all of which can be prevented by risk factor detection and connecting patients with appropriate healthcare services.[16] As past investigations have suggested, the psychological and cardiovascular illnesses present throughout the homeless population could be decreased with proper access to resources and improved healthcare knowledge.[10,16] Studies have also found that Hispanic individuals in the US have higher rates of undiagnosed, untreated, or uncontrolled high blood pressure, obesity, and diabetes when compared to non-Hispanic white individuals.[17,18] Hispanic individuals have also been shown to utilize preventative cancer screenings to a lesser degree, be less likely to have health insurance, and be more likely to delay or forgo needed medical care because of cost concerns.[17,19] Participation in appropriate preventative health services could mitigate many of the risks in these populations.

Free health clinics offer community members with limited resources an opportunity to connect with health services.[20,21] These clinics typically promote preventative healthcare by providing blood pressure and blood glucose screenings, but they often lack a focus on additional aspects of preventative health.[15,16,20] At the University of North Carolina at Chapel Hill (UNC), a network of student-run free clinics aims to support the local underserved community. As an extension of the centralized student-run free clinic offering full acute and chronic care visits, an interdisciplinary team comprised of student pharmacists, student physical therapists, and undergraduate student Spanish interpreters operates monthly walk-in clinics at two community locations. One location is a Spanish-language church serving a suburban community in Chapel Hill, North Carolina, and the other is a homeless shelter offering resources to individuals facing a lack of stable housing in downtown Durham, North Carolina. Services offered at the walk-in clinics include blood pressure and blood glucose screenings, physical therapy evaluations, and referrals to additional medical services. On average, 15-20 patients attend each 2-hour walk-in clinic.

In April 2018, student pharmacists implemented a new preventative health consultation (PHC) service at both community walk-in clinics to broaden the preventative health focus of the clinics and increase patient education opportunities. The purpose of this study was to evaluate the utility of implementing the PHC service at the free walk-in clinics by identifying participants' preventative health needs and examining the impact of the consultation service.

Methods

The new student pharmacist-led PHC service was piloted from April 2018 to April 2019. Attendees of the walk-in clinics were invited to participate in the prospective cohort study, which was approved by the UNC Office of Human Research Ethics Institutional Review Board. Certified Spanish interpreters were available to facilitate communication with participants who preferred to speak in Spanish, and all written material was available in Spanish and English. Participants in the study were required to be at least 18 years of age, provide informed consent, and engage in the PHC for the first time so that baseline needs for preventive healthcare could be assessed. Participants not fitting these criteria were excluded.

Recommendations discussed during the consultations were derived from the United States Preventive Services Task Force (USPSTF)[22] and Centers for Disease Control and Prevention adult immunization schedule.[23] Four general lists of recommendations from these resources (arranged by age [<50 years; ≥50 years] and sex [fe-

male; male]) were compiled to serve as the forms used during the consultation. An example consultation form for females 50 years and older is available in Online Appendix A.

The PHC consultation involved multiple steps. First, participants completed a written background survey on health characteristics and demographics. The student pharmacist then selected the appropriate consultation form and identified recommendations that might apply to the participant. After explaining each recommendation and addressing concerns, shared decision-making was used to determine the top three recommendations for each participant. Shared decision-making was defined as an open dialogue between the student pharmacist and participant to balance the urgency of each recommendation with participant preferences and values.[24] Upon designating a recommendation as one of the top three, participants were directed to local resources to complete the recommended service. Some resources suggested to participants included the centralized free clinic, the local health department, local Federally Qualified Healthcare Centers, or support groups at community centers or pharmacies. All recommendations were provided under the supervision of a licensed pharmacist, who oversaw the PHCs and provided clinical judgement when necessary. To end the PHC visit, participants were invited to complete a written post-PHC opinion survey.

Participants who completed the PHCs were contacted via email or telephone (based on stated preference) within three months to complete an electronic follow-up survey on their top three recommendations. Participants chose from a list of potential reasons or used a free-response "other" option to describe their rationale for completion or noncompletion of each recommendation. Participants that did not respond to three contact attempts were deemed lost to follow-up.

Each PHC recommendation was grouped into a category (vaccinations, health behaviors, chronic disease screenings, communicable disease screenings, cancer screenings, pharmacotherapy interventions, or other) to facilitate analysis of study findings. Recommendations from the USPSTF[22] classified into each category are defined in Online Appendix B. The primary outcome of the study was the frequency of each preventative health recommendation. Secondary outcomes included participant opinions of the PHC service and participant implementation of recommendations. Results were analyzed through Microsoft Excel 16.49 (Microsoft Corporation, Redmond, WA) using descriptive statistics.

Results

The study consisted of 29 people. While the enrollment rate was not formally documented, approximately 2 out of 20 patients at each monthly walk-in clinic enrolled. The mean age was 47.1±13.2 years and the mean body mass index (BMI) was 31.4±5.6 kg/m^2. Overall, 55% (n=16) were male, 48% (n=14) were Spanish-speaking, and 45% (n=13) were home-less/displaced. For the purposes of this study, homeless/displaced was defined as participants staying at homeless shelters, staying with other people, and/or with no place to sleep every night. No participants indicated that they were both homeless/displaced and spoke Spanish. Demographic information is summarized in Table 1.

Overall, 87 recommendations were chosen and classified as follows: 29.9% (n=26) health behaviors, 18.4% (n=16) vaccinations, 18.4% (n=16) chronic disease screenings, 17.2% (n=15) communicable disease screenings, 11.5% (n=10) cancer screenings, and 4.6% (n=4) other. The top three recommendation categories for the Spanish-speaking group (n=42 recommendations) were vaccinations (23.8%, n=10), communicable disease screenings (21.4%, n=9), and health behaviors (19.0%, n=8). For the homeless or displaced group (n=39 recommendations), health behaviors dominated the recommendations (41.0%, n=16) followed by chronic disease screenings (20.5%, n=8). Figure 1 depicts recommendations stratified by population type.

Of the participants who completed the post-PHC survey, 93% (n=27) anticipated being able to complete all of the top three recommendations provided (Table 2). Further, 96.3% (n=28) agreed or strongly agreed that they learned new information about their health from the PHC. All (100%, n=29) reported being glad to have engaged in the PHC and that the PHC service should continue at the monthly clinics (Table 2).

The electronic follow-up survey was completed by 58.6% of participants (n=8 Spanish-

Table 1. Participant Characteristics

Characteristic	N (%)
Gender	
Male	16 (55.2)
Female	13 (44.8)
Race/Ethnicity	
Hispanic or Latino	13 (44.8)
Black or African American	8 (27.6)
White or Caucasian	4 (13.8)
Multiple Races	3 (10.3)
Prefer not to answer	1 (3.4)
Language Spoken at Home	
English	14 (48.3)
Spanish	14 (48.3)
Prefer not to answer	1 (3.4)
Living Situation	
Homeless/Displaced	13 (44.8)
Staying at home	13 (44.8)
Prefer not to answer	3 (10.3)
Highest Level of Education Completed	
Less than high school	14 (48.2)
High school degree or equivalent	8 (27.6)
Collegiate degree	7 (24.1)
Tobacco Use Status	
Never used	10 (34.5)
Current user	9 (31.0)
Former user	9 (31.0)
Prefer not to answer	1 (3.4)
Past Medical History	
Significant past medical history*	8 (27.6)
No past medical history	18 (62.1)
Prefer not to answer	3 (10.3)
Last Doctor Visit	
Less than 6 months ago	14 (48.3)
Between 6 months and 1 year ago	10 (34.5)
More than 1 year ago	5 (17.2)
Usual Reason for Doctor Visits†	
I do not go to the doctor	1 (3.4)
I am feeling sick	10 (34.5)
I need a check-up or physical	14 (48.3)
I want refills of my medicines	5 (17.2)
Prefer not to answer	2 (6.9)

**Significant past medical history includes diabetes, kidney, heart, or lung disease.*

†Multiple response could be reported per person; does not equal 100%.

speaking; n=9 homeless/displaced). The 17 participants reported information on 46 of the total 87 recommendations given. Of the 46 recommendations with follow-up information, 58.7% (n=27) were reported as completed. Thirteen (48.1%) recommendations were reported as completed using the participant's own resource, 10 (37.0%) recommendations were reported as completed using one of the resources suggested during the PHC, and four (14.8%) completed recommendations did not specify which resource was used.

Overall, changes in health behaviors (46.2%, n=12) and chronic disease screenings (37.5%, n=6) were the most common completed recommendations, and communicable disease screenings (33.3%) and vaccinations (25.0%) were the most common recommendations not completed (Figure 2). The most common reasons reported for recommendation completion were "you told me it was a good idea to do this" (48.1%) and "it was free/low cost" (14.8%). Common reasons for non-completion were "I do not have time" (36.8%) or "I am planning to in the future" (26.3%). A full list of reasons given for recommendation completion status at follow-up is shown in Table 3. Online Appendix C shows a breakdown of all recommendations within each analysis category and reported completion status.

Discussion

This study is the first to our knowledge to evaluate a PHC service implemented by student pharmacists at student-run free walk-in clinics. Prior studies have demonstrated opportunities for improvement in providing preventative services at student-run free clinics, and a variety of student-led quality improvement initiatives have been described to address this gap.[9,13,14,25,26] While prior initiatives have largely focused on increasing the rate of preventative screenings by medical students during clinic appointments,[9,13,25,26] this study adds an alternative method for engaging patients in preventative healthcare. By focusing efforts on community walk-in clinics that extend services beyond a centralized free clinic, participants in this study were able to receive comprehensive reviews without attending a scheduled clinic appointment. This model allows for an opportunity to reach a greater number of

Table 2. Post-preventative health consultation survey responses

Participant Response	**N (%)**
I learned new information about how to take care of my health from this consultation.	
Strongly agree	19 (70.4)
Agree	7 (25.9)
Neutral	1 (3.7)
Disagree	0 (0.0)
Strongly disagree	0 (0.0)
I am glad that I participated in this consultation.	
Strongly agree	21 (77.8)
Agree	6 (22.2)
Neutral	0 (0.0)
Disagree	0 (0.0)
Strongly disagree	0 (0.0)
Do you think that you will be able to follow through on the top 3 recommendations made to you today?	
Yes, all of them	25 (92.6)
Yes, some of them	2 (7.4)
No	0 (0)
Should we continue offering this consultation service at our monthly screenings?	
Yes	27 (100)
No	0 (0.0)

Table 3. Recommendation status at follow-up

Participant Responses	**N (%)**
Reasons for Recommendation Completion (n=27)	
You told me it was a good idea	13 (48.1)
It was free/low cost	4 (14.8)
I value my health/want to take care of myself	3 (11.1)
I was already planning on doing this	3 (11.1)
I'm afraid of getting sick	1 (3.7)
I already had a doctor's appointment scheduled	1 (3.7)
Other: "I got tired of spending money on cigarettes"	1 (3.7)
No response	1 (3.7)
Reasons for Recommendation Noncompletion (n=19)	
I do not have time	7 (36.8)
I am planning to in the future	5 (26.3)
I could not make an appointment	2 (10.5)
I do not know how to do this	2 (10.5)
I do not think it is important to do this	1 (5.3)
I have an appointment coming up	1 (5.3)
It is too expensive	0 (0.0)
Other: "I do not remember this recommendation"	1 (5.3)

Figure 1. Recommendations by population

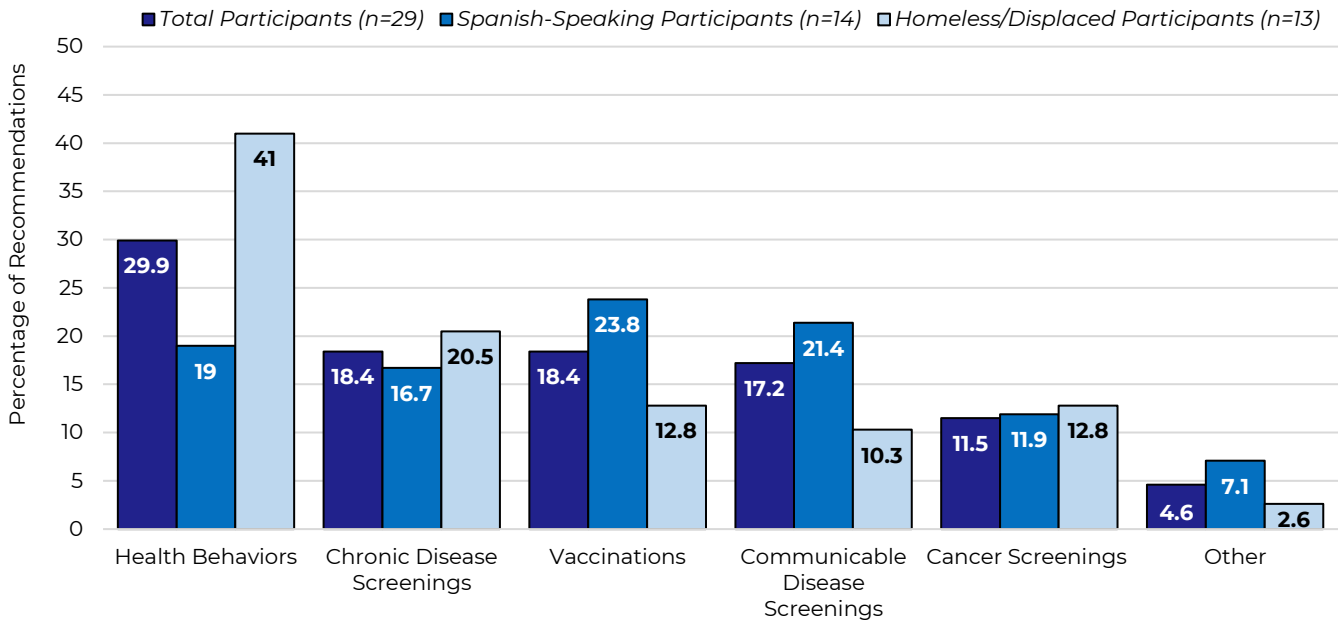
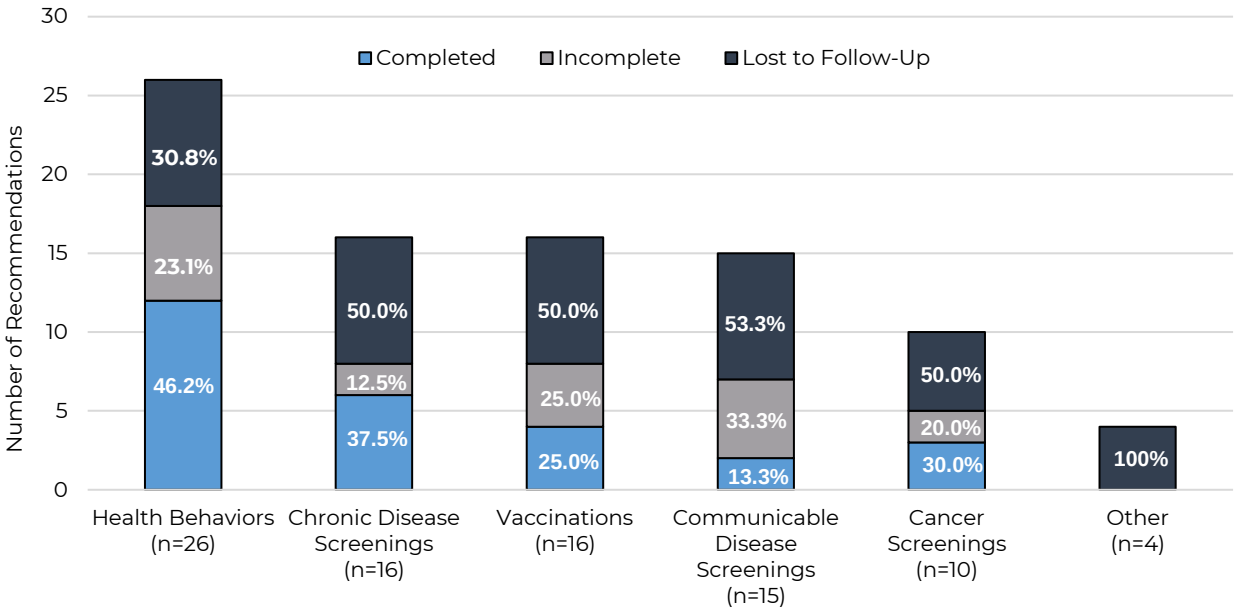


Figure 2. Summary of all recommendations and reported completion status



community members and involve students from additional health professions in preventative care.

Past studies have demonstrated the ability of pharmacist-led patient care initiatives to improve chronic disease state management, vaccination rates, and patient adherence to provider recommendations.[27-33] Implementation of this student pharmacist-led PHC service expanded upon the interdisciplinary services offered by the free clinic and promoted further involvement of student pharmacists in preventive patient care. The results of this study suggest that student pharmacist-led initiatives can help identify and mitigate gaps in preventative healthcare that exist for free clinic patients.

The most frequently prioritized preventative health needs of the participants in this study may reflect the effects of barriers to healthcare that have been described for these populations. Health behavior recommendations were among the most common recommendations for all participants, which aligns with the observation that under-resourced patients often opt for actions that avoid navigation of the complex healthcare system.[34,35] Specific obstacles affecting homeless populations have been described as similar among members of the population and include barriers such as access, affordability, literacy, transportation, and other systemic factors beyond individual control.[10,16,36-38] The findings of our study further support the effect of these barriers on healthcare, as the preventative health recommendations most frequently prioritized for homeless participants overwhelmingly focused on actionable health behaviors for each individual to implement. A wider variety of preventative health recommendations was observed in the Spanish-speaking population of this study, which may be explained by the barriers to medical care that have been described as affecting members of this population (e.g., different degrees of language, cultural, and financial obstacles).[17,39-41] The focus on vaccinations and communicable disease screenings in addition to health behaviors may reflect these differences or variations in participant access to healthcare.[36,41] The differences found between recommendations for Spanish-speaking and homeless/displaced participants in this study suggest the need for an individualized approach to providing PHCs for specific populations that incorporates an assessment of barriers.

The outcomes of the PHC process suggest opportunities for further research into ideal preventative health strategies for underserved or free clinic populations. Participant responses following the PHCs were positive, and while all participant follow-up data was not available, the completion rate in this study aligns with prior research showing the beneficial outcomes of preventative health interventions for under-served populations.[4-8,11,12] The most frequently reported reason for recommendation completion was "you told me it was a good idea," demonstrating the importance of the health education conveyed during the consultations. An interesting finding was that almost half of completed recommendations were reportedly completed using the participant's own resource instead of those suggested during the consultations. As 96.3% (n=28) of participants reported learning something new from the PHCs, this may suggest that a lack of knowledge or motivation to complete preventative services was a major barrier facing some participants instead of a lack of access to health services. This reinforces other studies that have shown that providing education about risk factors and creating a dialogue on preventive health with trusted providers can positively influence patients in seeking preventive healthcare.[10,11,42,43]

While this study was among the first to describe a student pharmacist-led PHC service at free clinics serving Spanish-speaking and homeless/displaced populations, there are limitations. The small sample size and implementation in North Carolina may limit the generalizability of results, and future studies should evaluate PHCs in other underserved areas. As the preventative health needs found for each patient were determined using shared decision-making, the needs that are expressed in this study may reflect patient preferences over epidemiologic findings. Identification of preventative health needs in this manner was intentional, however, to provide an accurate representation of the gaps in preventative healthcare that patients found important to address. Although all participants provided a phone number or email address to complete the follow-up survey, inconsistent access to email or

phone may have been a barrier to follow-up. While post-PHC findings were positive, the 59% follow-up rate limits the ability to draw conclusions about implementation of recommendations, as data from participants who completed follow-up may not reflect the outcomes of all participants. Additionally, outcomes could not be verified beyond patient reporting, which could overestimate completion of recommendations. Finally, participants in the study may have been more willing to engage with preventative healthcare as they were already attendants of the free walk-in clinics.

In conclusion, implementing a student pharmacist-led preventative health consultation service at student-run free walk-in clinics successfully expanded the clinics' and patients' awareness of preventative health needs. The most common preventative health needs found for homeless/displaced and Spanish-speaking participants were health behaviors, chronic disease screenings, and vaccinations, suggesting areas of focus for future outreach initiatives in these populations. The overall perception of the PHC process was positive, and participants who completed follow-up reported implementing a majority of their recommendations. This study suggests an additional role for student pharmacists at student-run free clinics and shows that preventative health consultations may increase underserved patient knowledge and engagement with preventative healthcare.

Disclosures

The authors have no conflicts of interest to disclose.

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