

Point-of-Care Lab Testing Needs: High Rates of Chronic Disease in North Texas Shelter Clinics

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INTRODUCTION

- Individuals experiencing homelessness are anywhere between twice and four times as likely to develop hypertension as the general population, often co-presenting with diabetes, liver disease, renal disease, and cholesterol disease.
- Point of care (POC) lab testing is a diagnostic approach that allows clinicians to obtain immediate test results outside a laboratory setting, allowing them to make timely decisions about treatment options and monitor patients' progress effectively.
- Several studies to date have shown that POC testing not only improves clinical decision-making, but also and improves health outcomes in comorbid chronic diseases such as diabetes and hypercholesterolemia.
- Union Gospel Mission (UGM) is an organization consisting of two homeless shelters in North Texas, Calvert Place and Center of Hope
- Calvert Place houses up to 450 men and Center of Hope houses up to 135 women and children
- Student-run free clinics operate at each shelter, providing basic primary care services
- Our clinics are limited in our diagnostic capabilities and treatment options
- We assessed common chronic medical conditions within our patient population of unhoused individuals with the intention of expanding our primary care services that will address their health needs.

METHODS

- Data Collection**
- Retrospective chart review was conducted on all adult patients who presented to UGM clinics April 2018 to April 2022.
 - Demographic information, clinic name, visit date, ICD diagnoses, past medical history, medication lists, and vitals were collected for all patients from Athenahealth.
 - Patients were defined as having a disease if they had 1) an ICD-10 diagnosis code for the disease, 2) past medical history of the disease, or 3) on medications for the disease.
 - Patients were additionally defined as having hypertension if they 4) had a systolic blood pressure ≥ 130 mmHg or diastolic blood pressure ≥ 80 mmHg.

- Data Analysis**
- All data analysis was conducted in R studio 4.3.0.

- Measuring Outcomes**
- We report the high prevalence of hypertension, diabetes mellitus, liver disease, renal disease, and cholesterol disease at Union Gospel Mission (UGM) Calvert Place and UGM Center of Hope (CoH).
 - This data serves as an impetus for the implementation of point-of-care (PoC) laboratory testing and treatment for the patients these clinics serve.
 - We will continuously assess severity and prevalence of these diseases post- PoC lab testing implementation

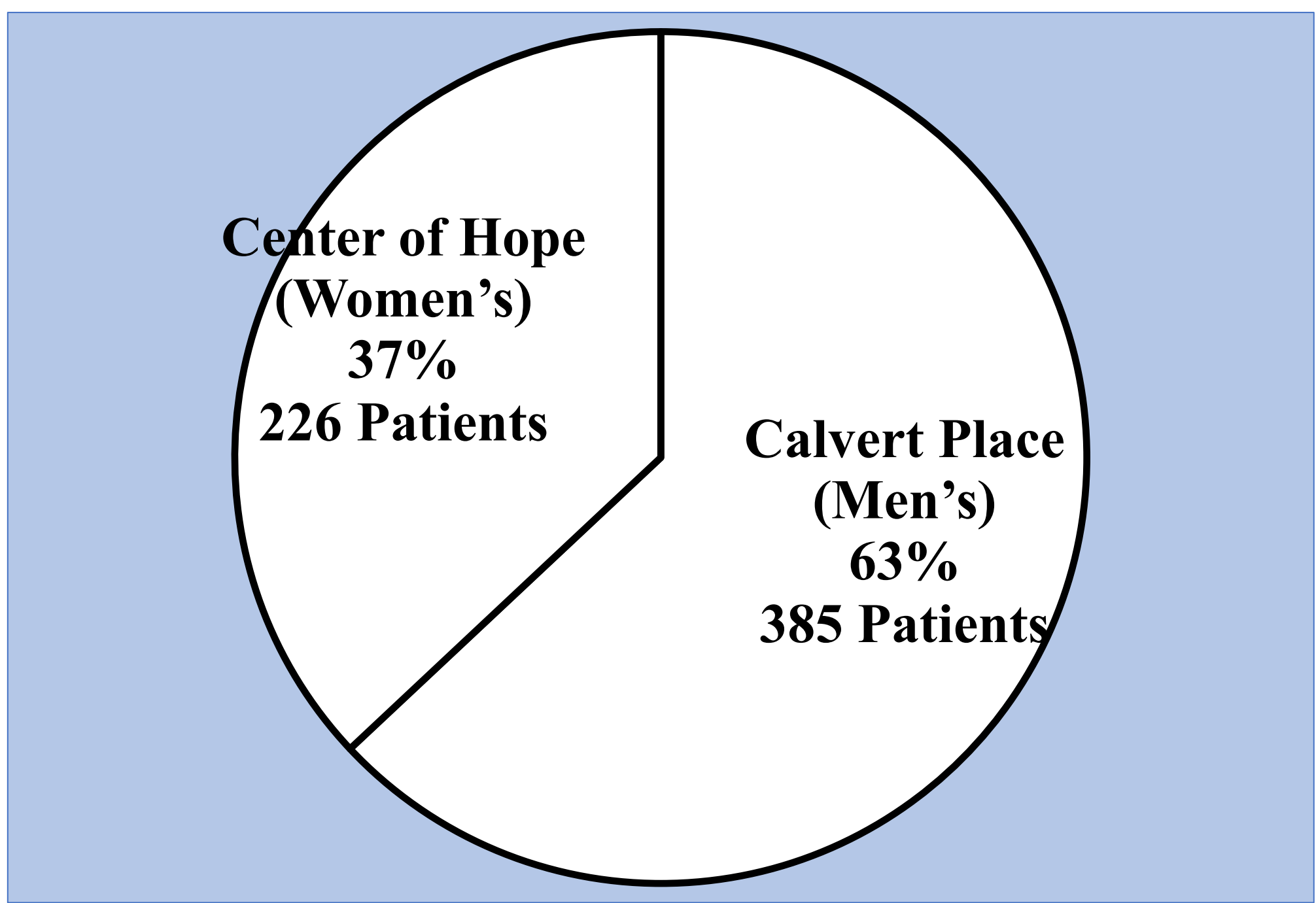
- Limitation**
- Inclusive blood pressure criteria: measurements were taken in one clinic visit rather than two separate occasions as recommended in the ACC/AHA guidelines. This may have led to the increased prevalence of HTN diagnoses at the clinics.



RESULTS

Patients Included in Data Collection at Two Dallas Shelter Clinics

Figure 1: A total of 611 patients presented across all UGM clinics with 385 patients at Calvert Place and 226 patients at Center of Hope.



Prevalence of Hypertension at UGM Clinics

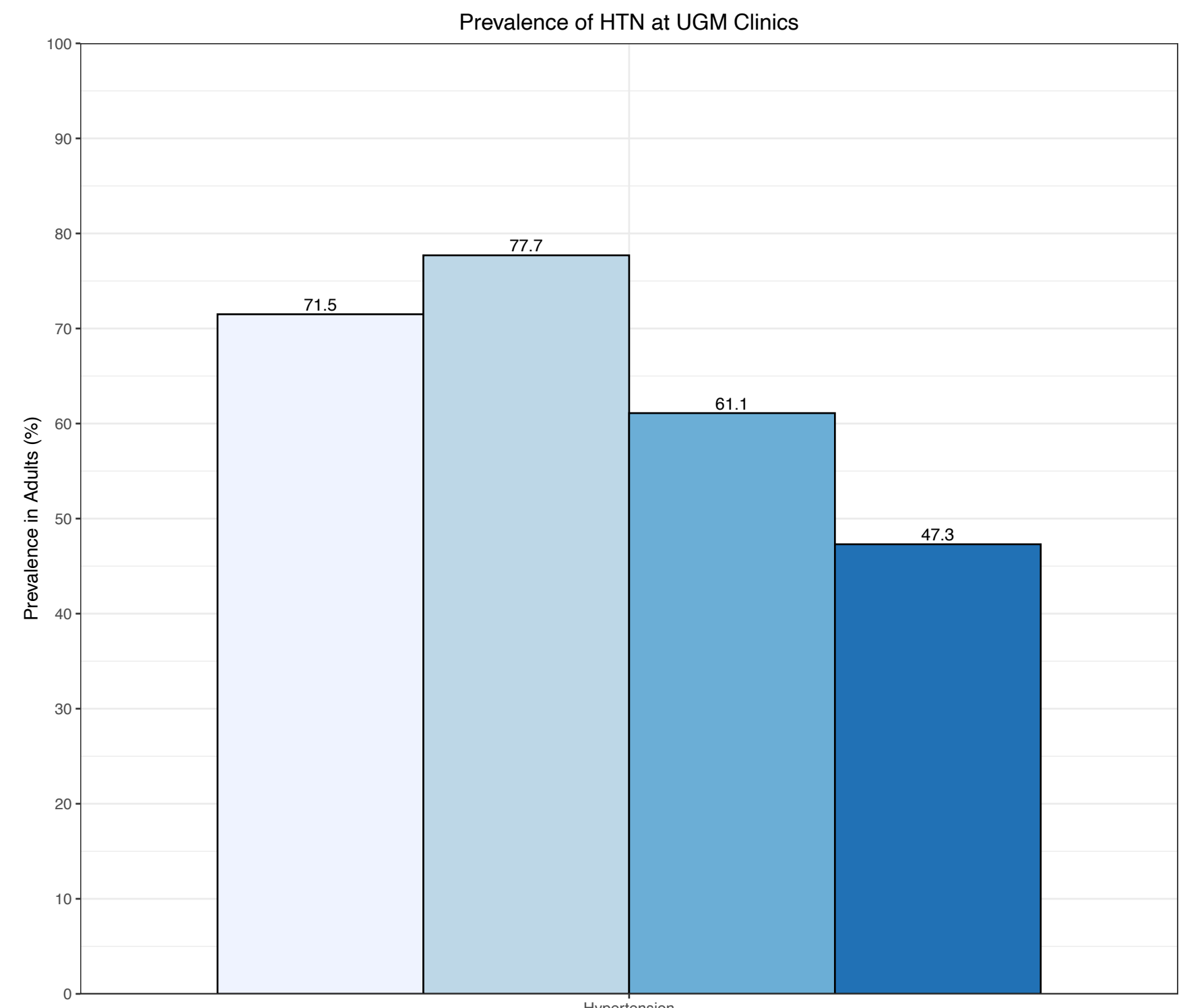
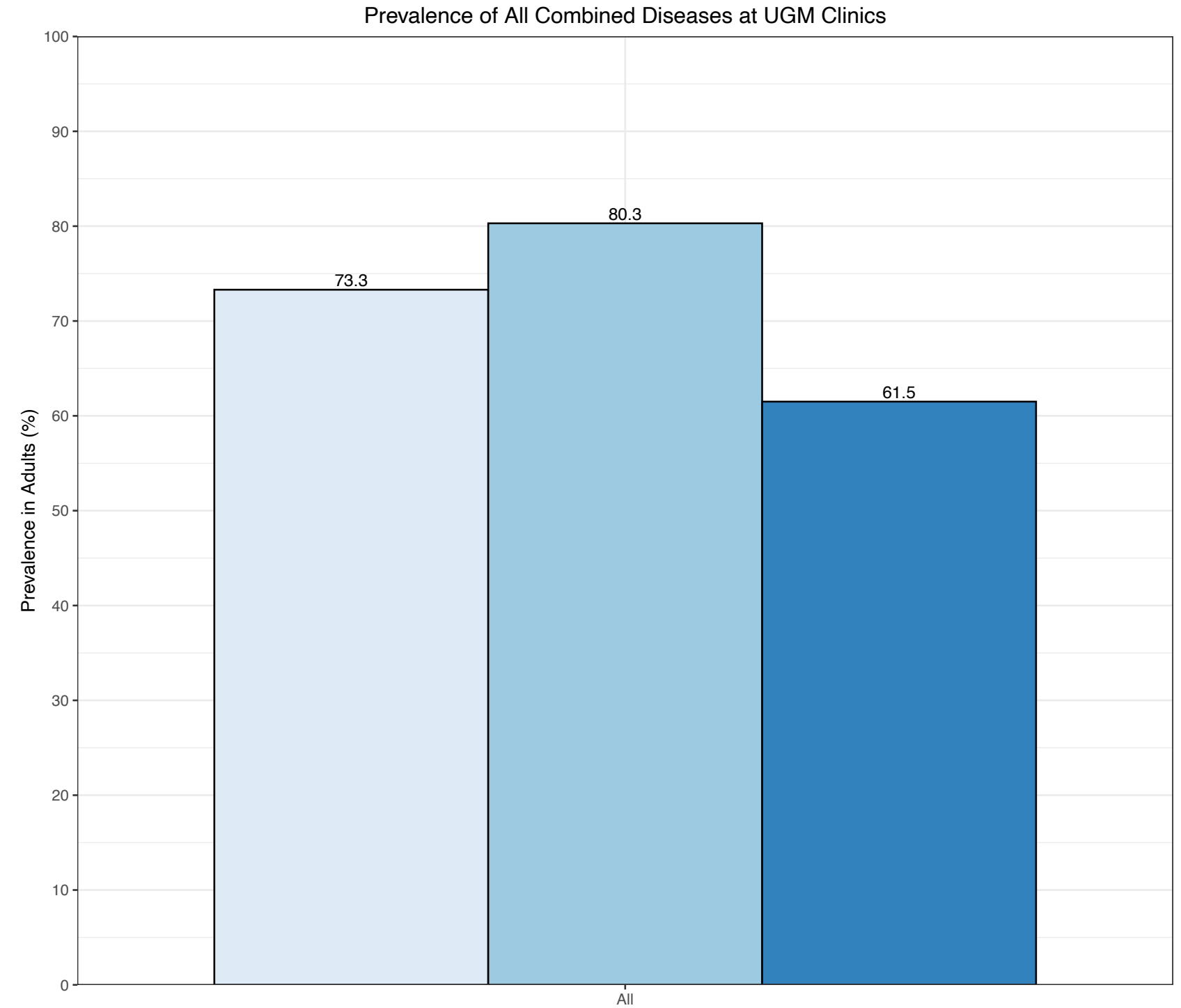


Figure 2: The prevalence of hypertension at all UGM clinics was 71.5% with 77.7% at Calvert Place and 61.1% at Center of Hope.

Prevalence of Select Chronic Diseases at UGM Clinics

Figure 3: The combined prevalence of hypertension, type II diabetes mellitus, chronic liver disease, chronic kidney disease, and hyperlipidemia at all UGM clinics was 73.3% with 80.3% at Calvert Place and 61.5% at Center of Hope.



Average Number of Clinic Visits for Patients With and Without Chronic Disease

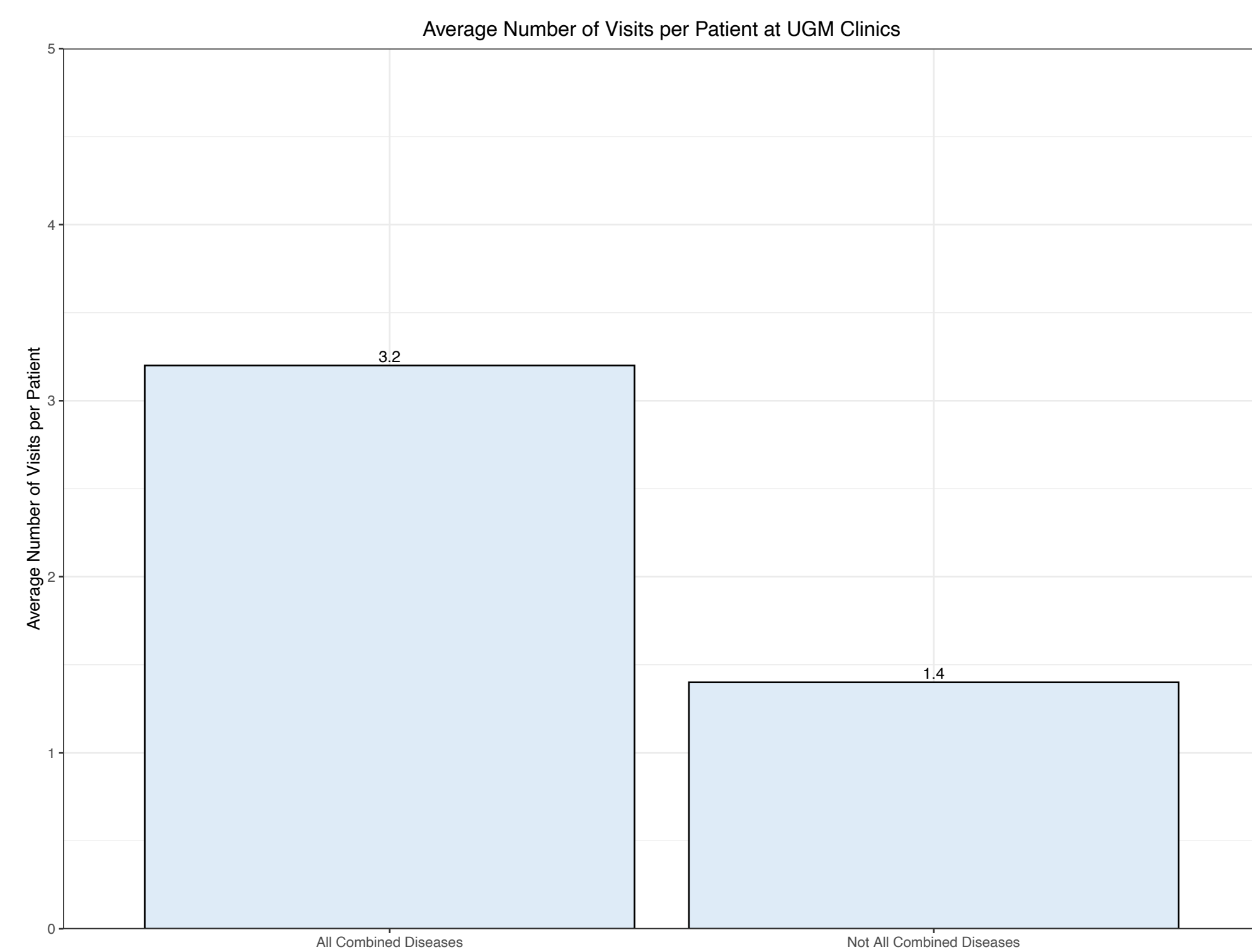


Figure 4: Of patients with hypertension, type II diabetes mellitus, chronic liver disease, chronic kidney disease, and hyperlipidemia, they comprised 80.3% of all clinic visits and had 3.2 average visits per patient compared to 1.42 average visits per patient without a history of any of the aforementioned diseases.

Purchased Equipment

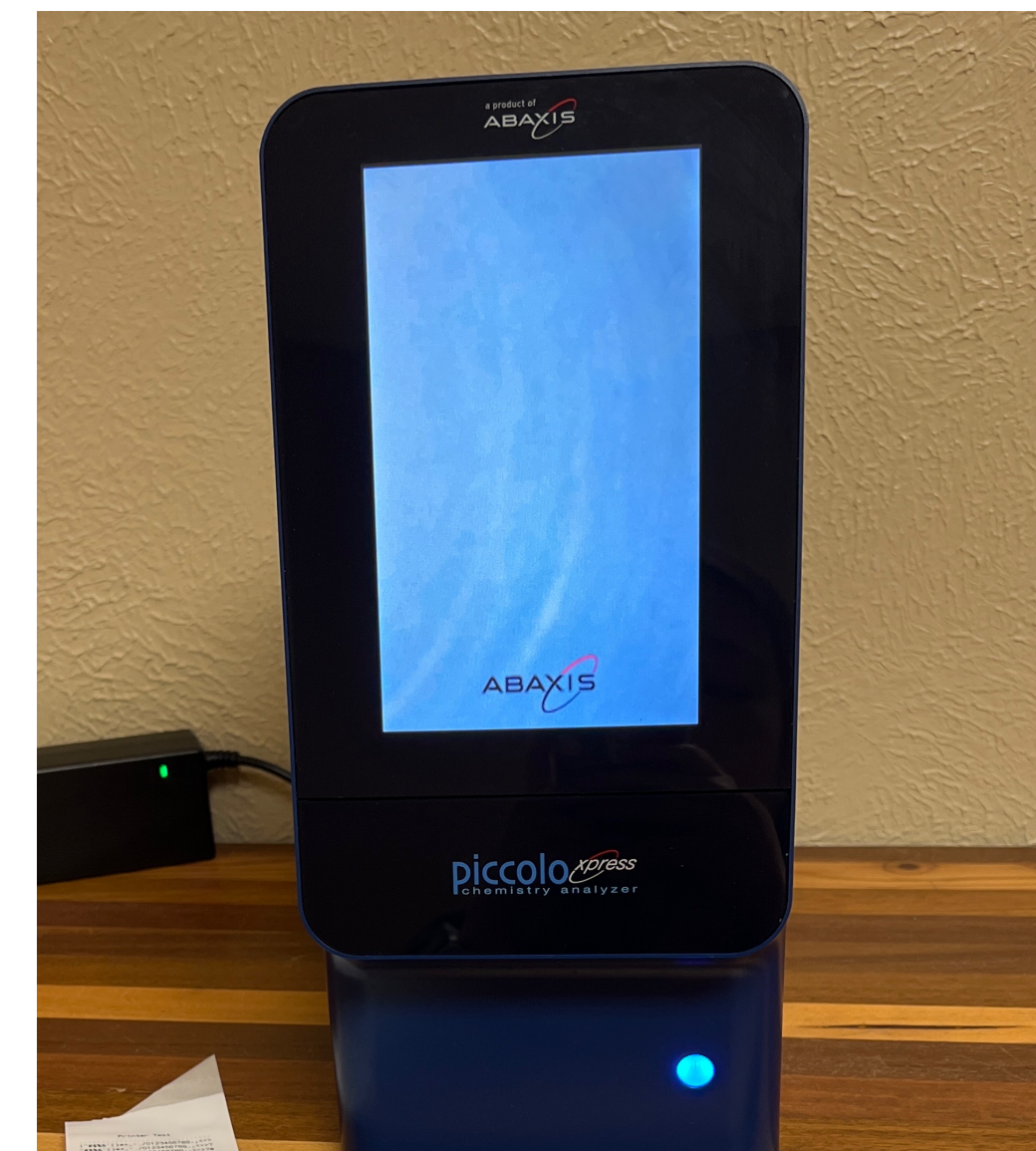


Figure 5: Point-of-Care Laboratory testing equipment, the PiccoloXpress and A1C now. *We have no conflicts of interest to declare.

CONCLUSIONS AND FUTURE WORK

- The prevalence of chronic diseases within our patient population is exceptionally high with roughly 70% of all patients meeting criteria for hypertension
- All chronic medical conditions were more commonly seen at the men's shelter compared to the women's shelter. Patients with a history of these chronic medical conditions had on average nearly two more clinic visits compared to patients without a history of these chronic medical conditions.
- Due to the high burden of disease and use of our student-run free clinic's no-cost services as their primary means to access healthcare, many of these patients would benefit from improved diagnostic capabilities for these conditions such as a complete metabolic panel and HgbA1c.
- This data serves as the impetus for implementing point-of-care testing at these clinics, which will allow for laboratory monitoring and better treatment for chronic conditions, such as hypertension and diabetes.
- Further work is needed to assess the impact of these interventions, including assessing the impact on severity and prevalence of these diseases

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