Community-Based Hemoglobin A1c Testing in Barbershops to Identify Black Men With Undiagnosed Diabetes

In the United States, black men with diabetes have disproportionately high rates of diabetic complications and are less likely to survive into their 70s compared with men in other racial and ethnic groups. The diagnosis of diabetes is often delayed, especially among black men without a regular source of primary care. In barbershops, which are places of trust among black men, community-based interventions have been successful in identifying and treating men with hypertension. Using point-of-care hemoglobin A1c (HbA1c) testing, we evaluated a community-based approach for diabetes screening in barbershops owned by black individuals.

Methods | From September 19, 2017, to January 23, 2019, customers were approached and tested at 8 barbershops owned by black individuals in Brooklyn, New York, in neighborhoods previously identified as having a high prevalence of poor glycemic control. English-speaking black men without a history of diabetes and aged 18 years or older were included in the study. Individuals with blood disorders such as sickle cell disease or those who had recently experienced blood loss were excluded from the study to avoid obtaining spurious HbA1c results. Participants were tested with the A1CNow® test (PTS Diagnostics), which provides results within 5 minutes and has a reported accuracy of 93% when correlated with HbA1c testing of venous blood. Participants with an HbA1c level of 6.5% or higher on a single test result were considered to have diabetes; however, a confirmatory test was not performed. Participants with an abnormal HbA1c result (≥5.7%) were counseled about the importance of modifying their diet and physical activity, the need for medical management, and were provided contact information for local primary care clinics. The institutional review board at the NYU Grossman School of Medicine approved the study. Written informed consent was obtained from the participants.

Results | Of the 895 black men who were asked to participate in the study, 312 (34.9%) agreed to be screened and 290 (32.4%) were successfully tested. Eight men were excluded because they had a blood disorder, and 14 men had an error code during their testing (such as for insufficient or too much blood) and declined a second test to resolve the code. Of the 583 men who refused to participate in the study, 331 (56.8%) provided a reason for refusal. Of these 331 men, 187 (56.5%) reported already knowing their health status or having been checked by their doctor, and 117 (35.3%) reported either being healthy, not having the time or interest, or not wanting to know their result. In addition, 26 men (7.9%) reported being scared of needles and only 1 specifically reported not wanting to be tested in a barbershop.

The Table shows the demographic characteristics of the 290 participants who were successfully tested. Of 290 participants, 26 (9.0%) had an HbA1c level of 6.5% or higher and 3 (1.0%) had an HbA1c level of 7.5% or higher. The highest HbA1c level was 7.8%. In addition, 82 participants (28.3%) had an HbA1c level between 5.7% and 6.4%, which is the criterion for diagnosing prediabetes. Of the 26 participants with undiagnosed diabetes, 16 (61.5%) were obese. The median age of these men diagnosed with diabetes was 41 (range, 22-65) years and 11 (42.3%) had an education of high school or less.

Table: Characteristics of 290 Study Participants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>All Ages, No. (%)</th>
<th>Age Group, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18-29 y</td>
<td>30-39 y</td>
</tr>
<tr>
<td>Participants</td>
<td>290 (100)</td>
<td>71 (24.5)</td>
</tr>
<tr>
<td>Caribbean or West Indies origin</td>
<td>75 (25.9)</td>
<td>20 (28.2)</td>
</tr>
<tr>
<td>Foreign born</td>
<td>78 (26.9)</td>
<td>10 (14.1)</td>
</tr>
<tr>
<td>High school education or less</td>
<td>128 (44.3)</td>
<td>25 (35.2)</td>
</tr>
<tr>
<td>BMI, Mean (SD)</td>
<td>29.3 (6.0)</td>
<td>28.5 (6.0)</td>
</tr>
<tr>
<td>Obese (BMI &gt;30)</td>
<td>102 (42.0)</td>
<td>21 (37.5)</td>
</tr>
<tr>
<td>Undiagnosed diabetes</td>
<td>26 (9.0)</td>
<td>3 (4.2)</td>
</tr>
</tbody>
</table>

Abbreviation: BMI, body mass index (calculated as weight in kilograms divided by height in meters squared).
Discussion | We found that approximately one-third of men approached in barbershops owned by black individuals in Brooklyn were willing to be screened for diabetes. We also found that barbers were important health advocates; although we do not have exact numbers, some customers (who initially declined testing) agreed after encouragement from their barber. Our study sample may not be representative of other barbershops; however, the prevalence of undiagnosed diabetes (9.0%) that we found was much higher than the estimated prevalence of undiagnosed diabetes at 3.6% among New York City residents.6

The participation rates may not be generalizable to other community-based settings or other areas of New York City or the United States. Although point-of-care HbA1c testing is relatively accurate, confirmatory testing is also important.

Black men who live in urban areas of the United States may face socioeconomic barriers to good health, including poor food environments and difficulty in obtaining primary care. Our findings suggest that community-based diabetes screening in barbershops owned by black individuals may play a role in the timely diagnosis of diabetes and may help to identify black men who need appropriate care for their newly diagnosed diabetes.

Marcela Osorio, BA
Joseph E. Ravenell, MD
Mary A. Sevick, ScD
Yonathan Ararso, BS
Ta’Loria Young, BA
Stephen P. Wall, MD
David C. Lee, MD

Author Affiliations: Ronald O. Perelman Department of Emergency Medicine, New York University Grossman School of Medicine, New York (Osorio, Ararso, Lee), Department of Population Health, New York University School of Medicine, New York (Ravenell, Sevick, Wall, Lee), Touro College of Osteopathic Medicine, New York, New York (Young).

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Corresponding Author: David C. Lee, MD, Department of Emergency Medicine, Research Division, New York University School of Medicine, 227 E 30th St, Room 107, New York, NY 10016 (david.lee@nyumc.org).


Author Contributions: Dr Lee had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. Dr Lee is the guarantor of this work.

Conflict of Interest Disclosures: Dr Wall reported receiving a grant from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) during the conduct of the study. Dr Lee reported receiving grants from the NIDDK during the conduct of the study, grants from the New York State Health Foundation, and grants from the Juvenile Diabetes Research Foundation outside the submitted work. No other disclosures were reported.

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Additional Contributions: David Brown (Research Coordinator, NYU School of Medicine) helped select barbershops and collected data. Kevin Mai, BA; Christian Hernandez, BA; Anisa Murhall, Jessie Recaii, BA; Kiara Zavala, BA; Cindy Restrepo, BA; Celeste Nsibuya; Juliet Allen; Clarissa Cervantes, BA; and Chike Leigh, BA (Department of Emergency Medicine, NYU School of Medicine) contributed to data collection. Except for David Brown, who is an NYU research coordinator, none of the individuals named herein received compensation for their contributions.


Estimation of Medicare Part D Spending on Insulin for Patients With Diabetes Using Negotiated Prices and a Defined Formulary

The US Department of Veterans Affairs (VA), unlike Medicare Part D, receives a minimum discount for prescription drug purchases and additionally relies on price negotiation and a national formulary to limit outpatient drug spending. A 2019 study found that Medicare could have saved $14.4 billion in 2016 from an estimated $32.5 billion in spending if it used VA-negotiated prices for the 50 costliest Part D oral drugs.1 Inhaled and injectable products represented 16 of the 50 costliest drugs covered under Medicare Part D in 2016.2 Recently, our research group reported that Medicare could have saved $4.2 billion of an estimated $7.3 billion in spending on inhalers in 2017 by using VA-negotiated prices and the VA formulary.3

Among injectable drugs, insulin has received particular attention for its high prices, which limit patient access. Since Congress and various states have pursued legislation to lower insulin prices, we estimated the savings that would result if Medicare Part D used VA-negotiated prices and the VA formulary.

Methods | We used the 2017 Medicare Part D Drug Spending Dashboard to determine spending on injectable insulin products and the number of dosage units (in milliliters) filled for each product.2 Medicare receives confidential drug-specific rebates from pharmaceutical companies beyond reported prices. We assumed rebates of 41% based on reported rebates on endocrine metabolic