Background
- Black men have 1.6 fold higher prostate cancer (PCa) incidence and 2-3 times the mortality rate compared to White men.
- Studies have linked Black race to PCa risk but most fail to account for established risk factors such as 5-ARI use, prostate volume, socio-economic status, and clinical setting.

Research Objectives
- To assess whether Black race independently predicts overall and significant PCa diagnosis on initial biopsy when controlling for established clinical, behavioral and socioeconomic risk factors, and hospital funding type in a multi-racial cohort.
- To examine changes in the effect size of Black race in men ages 40-54, who are excluded from US Preventive Services Task Force (USPSTF) PCa screening recommendations.

Methods
- Recruited 564 men over age 40 undergoing initial prostate biopsy for abnormal PSA or digital rectal examination (DRE) from three publicly funded and two private hospitals in Chicago from 2009-2014.
- Genetic West African ancestry (WAA) estimated using panel of 105 ancestry informative markers.
- Multivariate analyses examined the associations between clinical setting, race, WAA, and sociodemographic risk factors, PCa diagnosis and Gleason ≥3+4 PCa.
- Subgroup analysis performed for men age 40-54

Results
- Black men had higher median PSA (8.1 vs 5.6 ng/ml), PSA (0.22 vs 0.15 ng/ml/cm³) compared to non-Blacks (all p<0.05).
- Blacks had lower frequency of marriage (39.0% vs 72.2%), higher rates of poverty (61.7% vs 43.3%), were more likely to have smoked (64.8% vs 56.0%) and more likely to be recruited from public hospitals (89.2% vs 51.3%, all p<0.05).
- Blacks had increased rates of Gleason ≥3+4 PCa relative to non-Blacks in both public (27.7% vs 11.6%, p<0.001) and private (48.4% vs 21.6%, p<0.002) settings.
- WAA was not predictive of overall PCa diagnosis in Blacks either as a continuous variable (p=0.71) or in quartiles (Q1-Q3, p=0.001) and private (48.4% vs 21.6%, p<0.002).
- For men aged <55, Black race (OR 5.66, 95% CI: 1.39-23.16, p=0.02) and family history (OR 4.98, 95% CI: 1.39-17.87, p=0.01) were significant in multivariable models substituting WAA in place of Black race.
- Blacks had lower frequency of marriage (39.0% vs 72.2%), higher rates of poverty (61.7% vs 43.3%), were more likely to have smoked (64.8% vs 56.0%) and more likely to be recruited from public hospitals (89.2% vs 51.3%, all p<0.05).

Conclusions
- Black race remains associated with PCa after adjusting for clinical setting, clinical and socioeconomic risk factors.
- Black race is the strongest risk factor of PCa for men under 55 years.
- Black race remains associated with PCa after adjusting for clinical and socioeconomic risk factors.
- Black race is the strongest risk factor of PCa for men under 55 years.

Table 1: Biopsy outcomes stratified by race

<table>
<thead>
<tr>
<th>Race</th>
<th>Suspicious DRE</th>
<th>Normal DRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>30 (27.7%)</td>
<td>90 (82.3%)</td>
</tr>
<tr>
<td>Non-Black</td>
<td>40 (40.0%)</td>
<td>60 (59.0%)</td>
</tr>
</tbody>
</table>

Table 2: Binary logistic regressions for Black race versus overall prostate cancer diagnosis and Gleason ≥3+4 prostate cancer diagnosis

<table>
<thead>
<tr>
<th>Covariates</th>
<th>Odds Ratio (95% C.I.)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black race</td>
<td>2.93 (1.60-5.33)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Abnormal DRE</td>
<td>1.54 (0.74-3.21)</td>
<td>0.26</td>
</tr>
<tr>
<td>Non-Black race</td>
<td>0.86 (0.58-1.30)</td>
<td>0.50</td>
</tr>
<tr>
<td>Abnormal DRE</td>
<td>1.50 (0.86-2.63)</td>
<td>0.17</td>
</tr>
<tr>
<td>Non-Black race</td>
<td>0.91 (0.53-1.55)</td>
<td>0.74</td>
</tr>
</tbody>
</table>

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Black Race Predicts Significant Prostate Cancer Independent of Clinical Setting and Clinical and Socioeconomic Risk Factors

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