

HIV & Comorbid Hypertension

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Hypotheses

- Prevalence of hypertension (HTN) is higher among people living with HIV (PLWH) than the general population
- The 2017 update to clinical practice guidelines will significantly increase prevalence of HTN among PLWH



Background

- PLWH who achieve durable viral suppression have life expectancies comparable to the general population¹
- 53% of deaths among PLWH are from non-AIDS causes²
 - 15% of which are attributable to cardiovascular disease (CVD)
- Available literature suggested HTN prevalence range of 4% - 57%³
 - None assessed the impact of 2017 diagnostic guidelines
 - None assessed prevalence of HTN among PLWH in Texas



Background

2017 Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults

- Released by the American College of Cardiology and the American Heart Association in November 2017 (ACC/AHA 2017)
- Lowered diagnostic threshold to 130/80 mm Hg and redefined stages of HTN
- More aggressive target facilitates earlier identification and treatment of HTN
- First update in 14 years since the previous standard (140/90 mm Hg) was set by the Joint National Commission in 2003 (JNC-7)



Methods

- Medical record abstractions and interview data from 2013-2014 Medical Monitoring Project (MMP) survey
 - Houston + Texas project areas
 - n=957 PLWH
- Participants with HTN were identified:
 - Charted diagnosis
 - Antihypertensive medication use
 - Blood pressure readings (at 130/80 & 140/90 mmHg)
- Statistical analyses conducted to determine sociodemographic and clinical associations and odds ratios



Methods

Measure ⁴	2003 JNC 7 Guidelines	2017 ACC/AHA Guidelines
Average of last three systolic readings	≥140 mm Hg	≥130 mm Hg
Average of last three diastolic readings	≥90 mm Hg	≥80 mm Hg
One systolic reading	>180 mm Hg	>180 mm Hg
One diastolic reading	>120 mm Hg	>120 mm Hg
Three systolic readings	≥140 mm Hg	≥130 mm Hg
Three diastolic readings	≥90 mm Hg	≥80 mm Hg

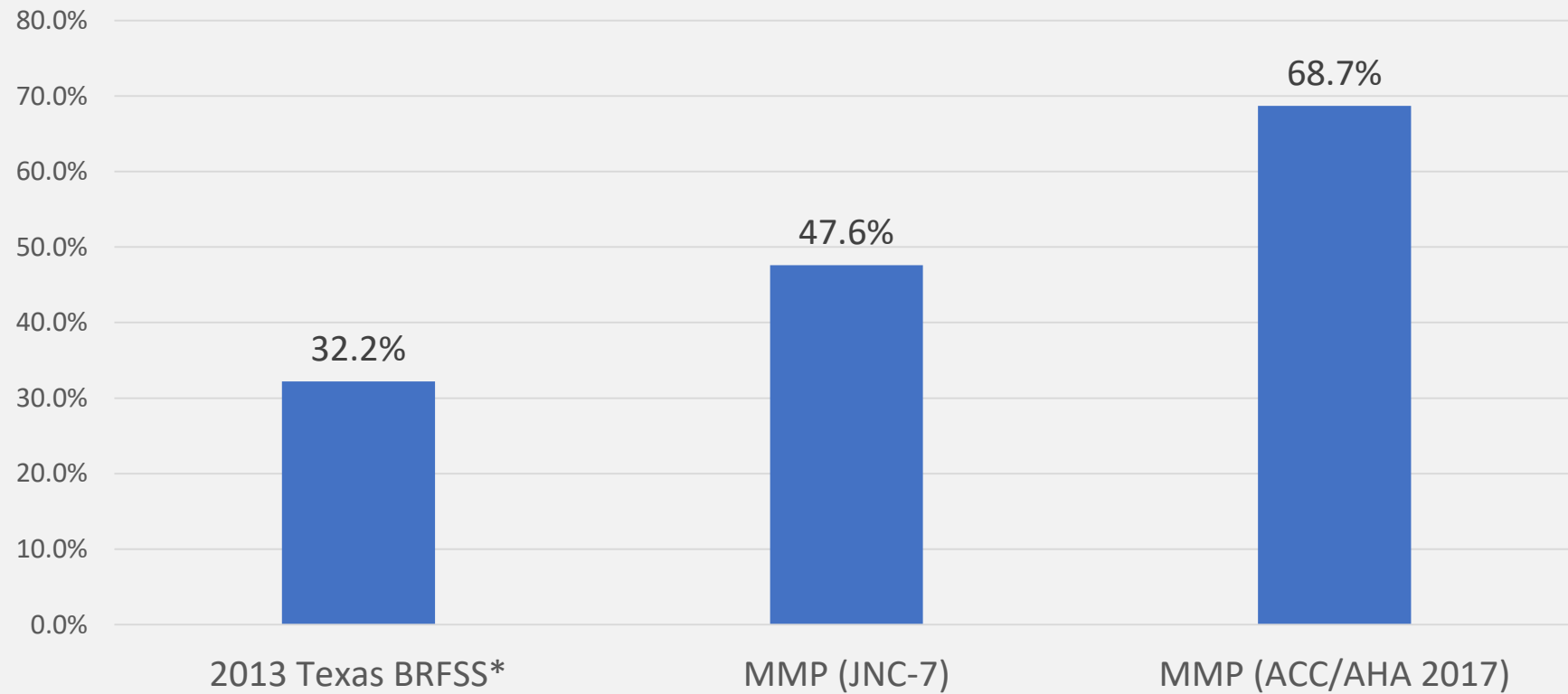


Results

- HTN prevalence among sample increased from **47.6%** to **68.7%** with the 2017 update
- Several sociodemographic and clinical variables were **significantly associated** with HTN under both guidelines:
 - Age, race/ethnicity, BMI, smoking status, length of time on antiretroviral therapy (ART), and time since HIV diagnosis
- Males were **2.36 times** more likely to be hypertensive than females at $\geq 130/80$ mm Hg
- Those with BMI ≥ 30.0 (obese) were **6 times** more likely to be hypertensive than those with BMI ≤ 24.9 at $\geq 130/80$ mm Hg



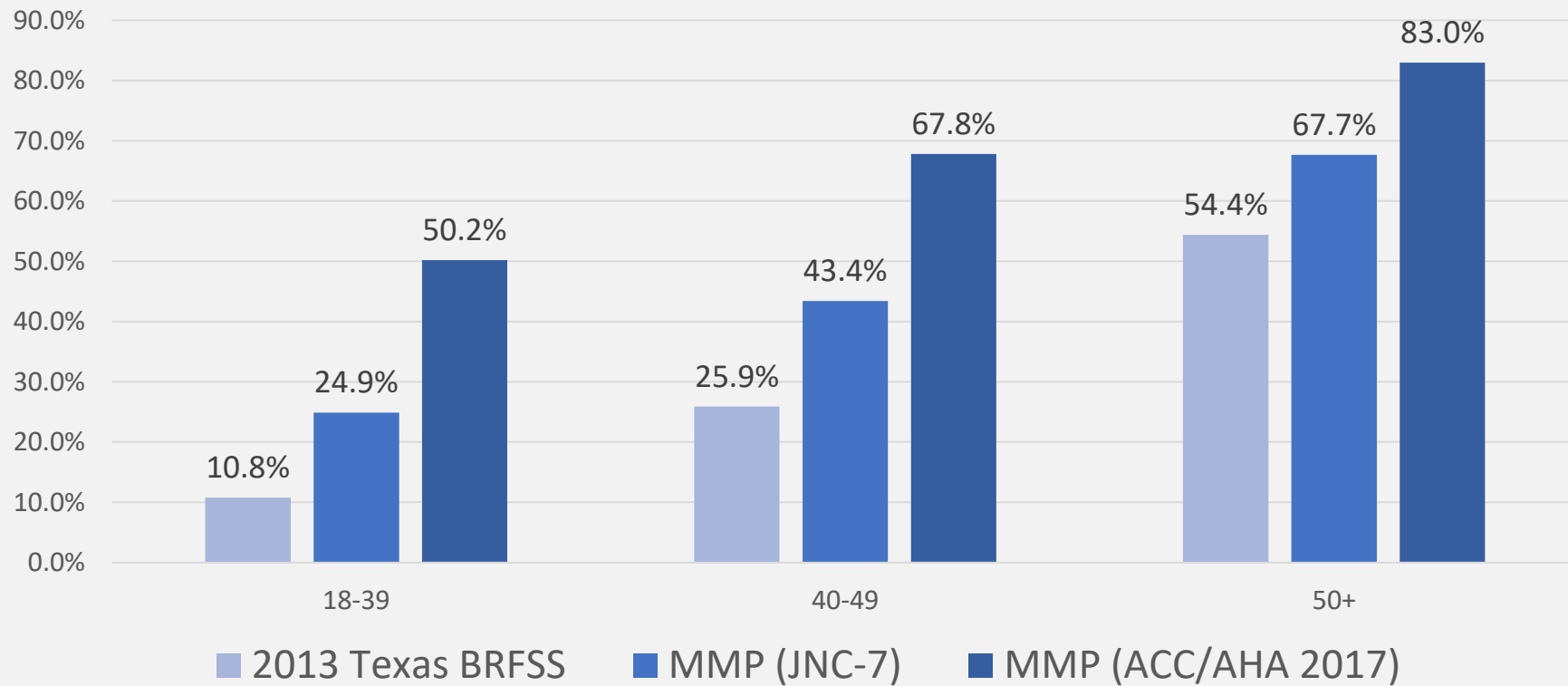
Results: Overall Prevalence



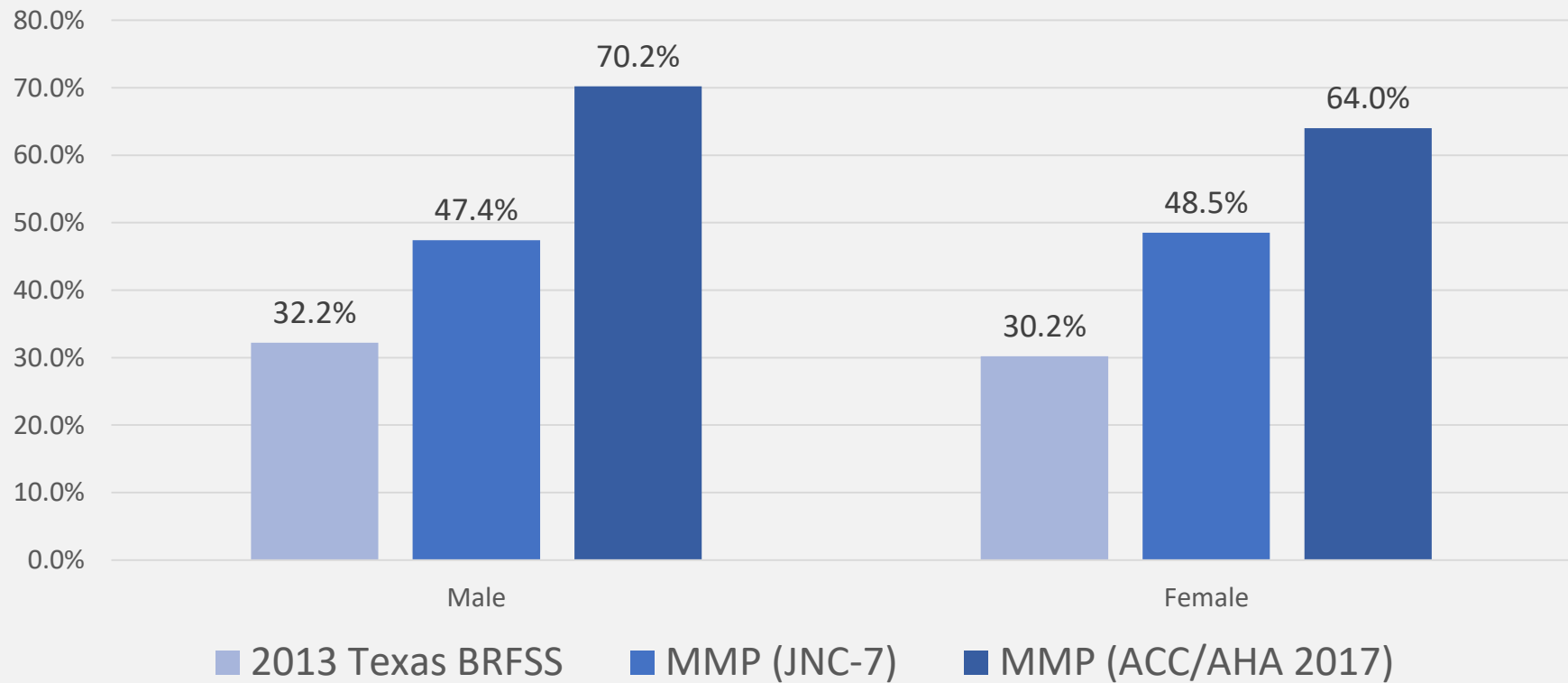
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*Behavioral Risk Factor Surveillance System⁵

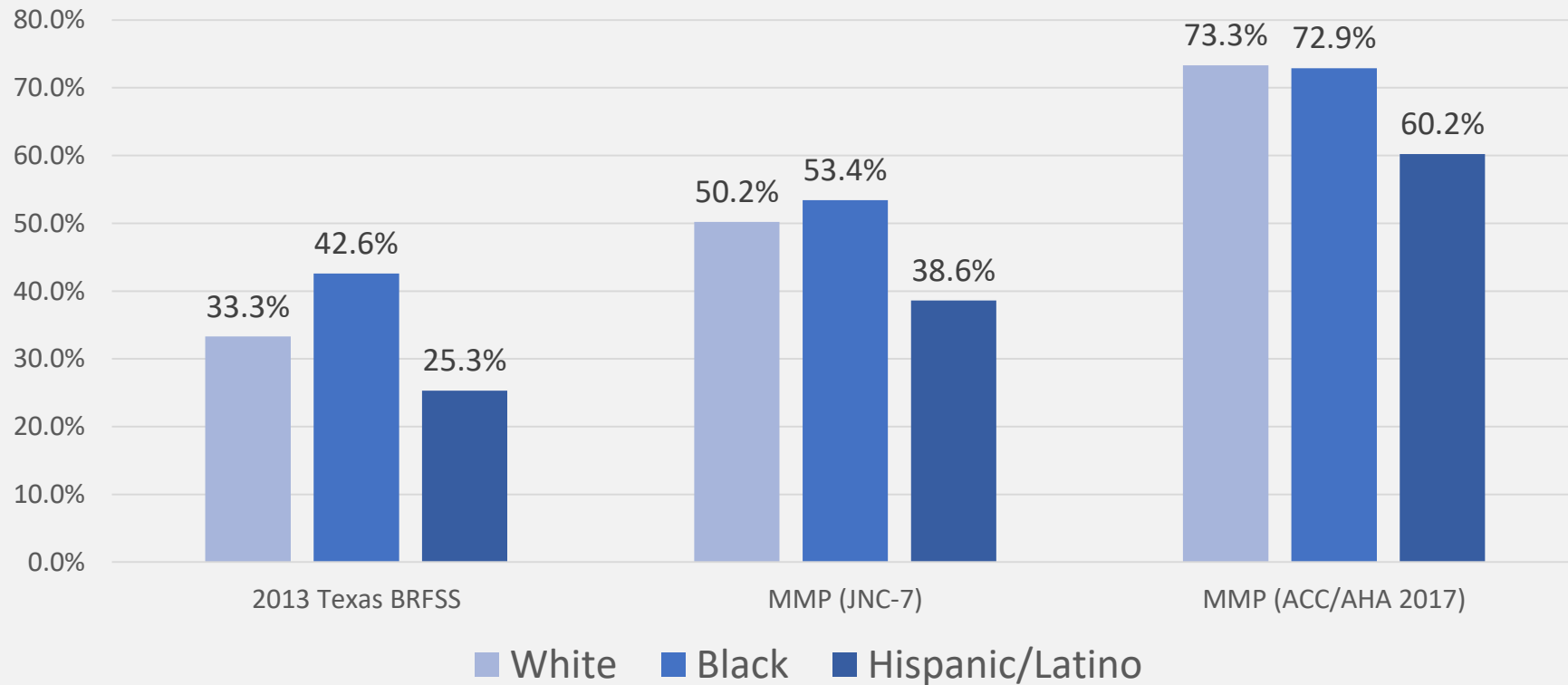
Results: Prevalence by Age Group



Results: Prevalence by Sex



Results: Prevalence by Race/Ethnicity



Potential Risk Factors

- **Age:** Nearly 60% of PLWH in care in Texas are >45, and more than half have lived 10+ years with their HIV diagnosis
- **Smoking:** One-third of the sample were current smokers, and another 21.6% were former smokers
- **Obesity:** Nearly two-thirds were overweight or obese
- **Inflammation:** Immune response to HIV may damage endothelial receptors in the lining of blood vessels or cause arterial stiffness^{6,7}
- **ART:** Certain classes may be associated with weight gain^{8,9} or their effect may come from immune suppression/reconstitution⁶



Discussion Points

- ACC/AHA anticipated the updates guidelines would increase national HTN prevalence by 42.9%¹⁰
 - In our sample, prevalence increased by 44.3%
- PLWH retained in care typically have at least 2-3 clinical encounters per year
 - Prime opportunities to address HTN concurrently
 - International reports point toward low awareness and low provider engagement on the topic



Next Steps

- Assess barriers to addressing HTN in HIV care settings
- Explore opportunities for infectious disease/primary care cross-training
- Leverage other common touch points to provide patient education, such as medication therapy management in pharmacy settings
- Promote CVD management best practices:
 - Team-based care
 - Self-management education and support
 - Self-measured blood pressure monitoring



Summary

- HTN is a highly prevalent comorbidity for PLWH
- The 2017 change to diagnostic criteria increased sample prevalence by 44.3%, from 47.6% to 68.7%
- Because PLWH are living longer after HIV infection/diagnosis, chronic diseases and related risk factors should be routinely addressed and normalized in HIV care
- Further research is needed to identify provider- and patient-related barriers to successful prevention, identification, treatment, and management of HTN in HIV care settings



Publication Information

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- **Authors:** Jessica Hyde, Sabeena Sears, Justin Buendia, Sylvia Odem, Margaret Vaaler, and Osaro Mgbere
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Questions?



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Thank you!

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