# Health Disparities in Black, Latinx, and Native Populations Compared to Caucasians: A Retrospective Descriptive-Analysis of Care Focused on Hypertensive Emergency, Non-ST Segment Elevation Myocardial Infarction (NSTEMI), and Cerebrovascular Accident (CVA).

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**PROVIDENCE**
Health & Services

## Background

- Health disparity is a sum of differences in healthcare seen in underserved populations of the United States. [1]
  - Differences include incidence, prevalence, mortality, burden of disease, and other adverse health conditions
- According to ASHP, health disparities continue to be a major public health problem confronting the U.S. health care systems. [2]
- Evidence suggests that health disparities can be in part due to differences in the quality of care for different racial and ethnic groups. [2]
- All the different disparity factors have been shown to lead to different health outcomes that do not favor Black, Latinx, and Native American populations.
- ASHP believes health-system pharmacists have both a professional and moral obligation to take part in initiatives that work towards erasing any racial and ethnic disparities in healthcare. [2]
- Examples of ways pharmacists can make an impact are:
  - Increase awareness among fellow caregivers
  - Ensure effective communication by volunteering for leadership roles
  - Enforce consistency of using evidence-based therapy for all patients
  - Analyze data for outcomes sorted by racial minorities
- Per ASHP there are three general principles that serve as guides for pharmacist to help erase healthcare disparities: [2]
  1. All patients have the right to high-quality care, by taking leadership roles pharmacists can partake in initiatives to increase access to care.
  2. Medication-use practices should reflect knowledge of, sensitivity to, and respect for the race and culture of the patient.
  3. Health-system pharmacists have a vital role to play in eliminating racial and ethnic disparities in health care.

## Purpose

- Evaluate and compare how two large tertiary hospitals have provided prompt evidence based medical therapy to Blacks, Latinx, and Natives, in comparison to Caucasians pertaining to hypertensive emergency, non-ST segment elevation myocardial infarction (NSTEMI), and cerebrovascular accident (CVA)
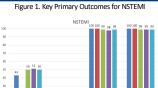
## Objective

- Determine what differences there may be in providing various non-medication/medication interventions and time-to-intervention order placement after arrival to the emergency department (ED)

## Methodology

- Institutional Review Board (IRB) – approved
- Double center, observational, descriptive-analysis, retrospective review, spanning 51 months (January 1st, 2017, to March 31st, 2021), of adults presenting to ED at either of the two large tertiary hospitals.
- Inclusion criteria
  - Black, Latinx, Native American, and Caucasian adults (> 18 years old) presenting to the ED with primary diagnosis of NSTEMI, hypertensive emergency, or CVA.
- Exclusion criteria
  - ≤ 18 years old; patients not meeting the pre-specified race/ethnicity criteria; primary diagnosis outside of hypertensive emergency, NSTEMI, or CVA

## Results

Table 1. Patient Demographics

| Overall n=4308 | Race | | | Ethnicity | |
|---|---|---|---|---|---|
| | Black or African American | American Indian or Alaska Native | White or Caucasian | Hispanic or Latino | Not Hispanic or Latino |
| **NSTEMI (ICD-10 I21.4)** | n=1695 | | | n=2036 | |
| | n=72 | n=11 | n=1612 | n=107 | n=1929 |
| Gender | | | | | |
| Male, No. (%) | 35 (48.6%) | 4 (36.4%) | 911 (56.5%) | 61 (57.0%) | 1100 (57.0%) |
| Female, No. (%) | 37 (51.4%) | 7 (63.6%) | 701 (43.5%) | 46 (43.0%) | 829 (43.0%) |
| Age (years) | | | | | |
| Mean | 63.93 (SD:15.42) | 59.09 (SD:14.42) | 70 (SD:14.24) | 60 (SD:16.68) | 69.39 (SD:14.58) |
| **Hypertensive Emergency (ICD-10 I16.9)** | n=8 | | | n=9 | |
| | n=0 | n=0 | n=8 | n=1 | n=8 |
| Gender | | | | | |
| Male, No. (%) | N/A | N/A | 6 (75%) | 1 (100%) | 6 (75%) |
| Female, No. (%) | N/A | N/A | 2 (25%) | 0 (0%) | 2 (25%) |
| Age (years) | | | | | |
| Mean | N/A | N/A | 47.88 | constant - 58 | 46.25 |
| **CVA (ICD-10 I63.9)** | n=1858 | | | n=2263 | |
| | n=102 | n=17 | n=1739 | n=99 | n=2164 |
| Gender | | | | | |
| Male, No. (%) | 50 (49.0%) | 6 (35.3%) | 819 (47.1%) | 40 (40.4%) | 1033 (47.7%) |
| Female, No. (%) | 52 (51.0%) | 11 (64.7%) | 920 (52.9%) | 59 (59.6%) | 1131 (52.3%) |
| Age (years) | | | | | |
| Mean | 63.08 (SD: 13.05) | 63.06 (SD:13.03) | 72.04 (SD:14.05) | 62.73 (SD:14.92) | 71.08 (SD:14.21) |

### Figures 1 – 3 Results of Primary Outcomes


Figure 1. Key Primary Outcomes for NSTEMI


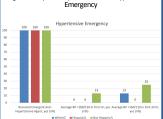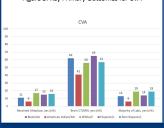Figure 2. Key Primary Outcomes for Hypertensive Emergency


Figure 3. Key Primary Outcomes for CVA

### Figures 4 – 6 Results of Secondary Outcomes
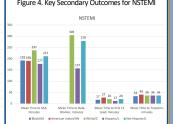

Figure 4. Key Secondary Outcomes for NSTEMI


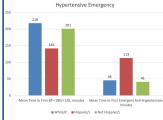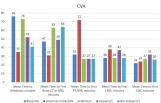Figure 5. Key Secondary Outcomes for Hypertensive Emergency


Figure 6. Key Secondary Outcomes for CVA

## Discussion

**Patient Population**
- The total number of patients in the study was 4,308.
- Breakdown of primary clinical diagnosis categories by order of most prevalent: CVA (n=1,858), NSTEMI (1,695), hypertensive emergency (n=8)
- Total population heavily consisted of White or Caucasian (n=3,359) which was 94% of the racial groups.
- Total Hispanic or Latino population (n=207) was 4.8% of ethnicity groups.

**Primary and Secondary Outcomes:**
NSTEMI:
- Similar ordering rates of ECG 12 lead and troponin, (98-100%). American Indian/Alaska Native group had longest time elapse before ordering either.
- Aspirin ordering rates were 18% for American Indian/Alaska Native, 43% for Black/African American, 50-51% for the remaining three groups .

Hypertensive Emergency:
- No data for either Black/African American or American Indian/Alaska Native groups.
- Emergent anti-hypertensive agent ordering rates were 100% for all groups, with White/Caucasian and Not Hispanic/Latino groups having shortest time-to anti-hypertensive agent being ordered.
- Achieving average BP <160/110 mmHg in the first 24 hours favored the Not Hispanic/Latino group with the highest rate of 25%, followed by 13% for White/Caucasian and 0% for Hispanic/Latino.

CVA:
- Alteplase ordering rates were lowest in the American Indian/Alaska Native group (6%) followed by the Black/African American group (11%) which also had the longest time elapse before ordering (76 minutes).
- American Indian/Alaska Native population had lowest ordering rates for brain non-contrast CT or MRI at 41% and the lowest ordering rates of key labs/diagnostics outside of brain imaging at 6%.

Limitations:
- Descriptive study – no statistical analysis performed
- Racial and ethnic identification inaccuracy cannot be ruled out as data was pulled from Epic.
- Unidentified variables may have altered the choice of therapy from providers (e.g., formulary changes)

## Conclusions

- Differences in care were present, with more unfavorable trends seen in the American Indian/Alaska Native group.
- Data inconsistencies made reliability of results uncertain. This also made statical analysis challenging.

## Next Steps

- Establish statistical analysis to determine statistically significant differences among the variables
- Data collection on race and ethnicity needs to improve to make certain that data capturing is accurate and consistent.

## Acknowledgements

- Susan Vaughan, PharmD, BCPS, Clinical Informatics Pharmacist
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## References

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