



Far Out: Evaluating the Impact of Distance on Acute Burn Outcomes



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Background

Burn centers are **disproportionately concentrated in urban areas**, threatening to produce **health disparities** among rural patients.

Delays in treatment can lead to longer hospital stays, higher risk of complications, delayed wound healing, and increased mortality.

Existing racial disparities in burn outcomes are well documented. A recent study found Black patients had the **highest mortality rates**, American Indian/Alaskan Native patients faced **more complications**, and all **minoritized groups had longer hospital stays than White patients**.

Aims

Assess the **effect of patients' distance** from the nearest burn center on acute burn outcomes

Explore the association between **race and distance** from the burn center



Methods



Patient Selection

- **5-year retrospective review** of patients presenting with acute burn injuries at a single ABA-verified burn center



Data collection

- **Primary outcomes:** Effect of distance on acute burn
- **Secondary outcomes:** Patient demographics, comorbidities, burn etiology, distances from burn center, acute burn injury complications



Analysis

- Linear regression, analysis of variance

Results

- Distance from the burn center was **not significantly associated with mortality** or the acute burn outcomes measured
- Greater distance was significantly associated with **longer delays between injury and admission**

Table 1. Race and Distance to Burn Center

Race	Mean Distance to Burn Center (km) ± SD
African-American	99.9 ± 688.1
American Indian/Alaska Native	101.8 ± 140.4
Caucasian	144.7 ± 707.2
Native Hawaiians/Pacific Islanders	386.6 ± 1624.1

Results

Table 2. Patient and Burn Injury Characterization

Variable	Number of Patients (%)
Age (years), mean ± SD	41.1 ± 24.4
Gender	
Men	1936 (69.7)
Women	841 (30.3)
Race	
Caucasian	2260 (81.4)
African American	380 (13.7)
Native Hawaiian/Pacific Islander	61 (2.23)
American Indian/Alaska Native	26 (0.97)
Comorbidities	
Smoking	926 (13.30)
Hypertension	807 (11.59)
Obesity	600 (8.62)
Psychiatric	481 (6.91)
Burn Etiology	
Flame	999 (50.13)
Scald	543 (27.25)
TBSA (%) mean ± SD	7.3 ± 12.4%
Outcomes mean ± SD	
Time from injury to admission (days)	1.04 ± 2.9
Days spent on ventilator	0.8 ± 4.0
Days in ICU	3.2 ± 9.0
Days in the hospital	3.2 ± 9.0 days
Number of operations	9.1 ± 12.15 days
	0.81 ± 1.5

Table 3. Patients' Distance (km) to Burn Center

Distance	Number of Patients (%)
<20 km	765 (27.6)
20-50 km	488 (17.6)
50km<	1, 524 (54.9)

Discussion

The lack of association between acute burn outcomes and distance may be attributed to rapid and effective stabilization and transportation of patients.

Native Hawaiians/Pacific Islanders lived **significantly farther than any other group**, which may indicate a lack of access to healthcare among this population

The institution where this study was conducted is in an urban area, and according to the ABA, the closest burn center to ours is a 10-minute drive away. **Beyond that, the next closest is in a different state.**

Conclusions

Efforts in this area should be geared towards **telemedicine for remote consultations** and **more robust community education** on the treatment of acute burns, especially for those without access to care.

References

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2. Mecklin V Ragan, et al. "A Comparison of Racial and Ethnic Disparities in Complications Following Burn Injury in Adult Patients," *Journal of Burn Care & Research*, Volume 46, Issue 1, January/February 2025, Pages 38–47, <https://doi.org/10.1093/jbcr/irae126>