

Beyond the Surface: Clinical and Social Determinants of Pavement Burns

Alex Chen MD, Vidhani Goel BS, Brenna Chen MD1, Alexander Rowan MD, Christopher Demme MD, Tiffany Yu, MD, Paul Kim, MD, Kendra Coleman, Shane Jung BS, Avni Joshi BA, Stephanie Martinez MD, Kavitra Batra PhD, Rabia Nizamani MD



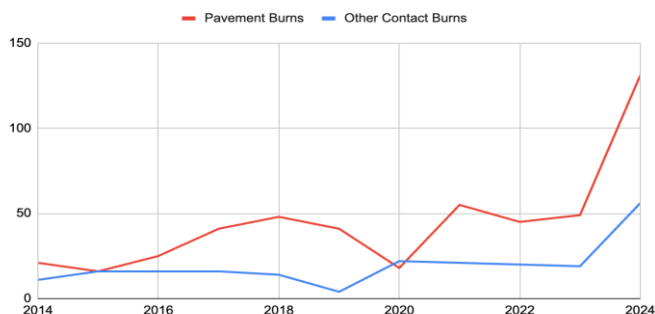
BACKGROUND

- In urbanized desert cities with extreme heat, pavement-type contact burns are a growing source of morbidity and mortality.
- Limited data characterize the clinical outcomes of pavement-type contact burns compared to other contact burns.
- Our study aims to describe the epidemiology, clinical course, and outcomes between the two groups.

METHODS

- Retrospective chart review of a single regional burn center between 2014 and 2023 with documented contact or pavement burns.
- Extracted variables included demographics, comorbidities, mechanism of injury, burn characteristics, total body surface area (TBSA), burn depth and location, treatment modality, complications, ICU admission, length of stay, and mortality.

Total Pavement Burns vs Other Contact Burns



Injury Seasons

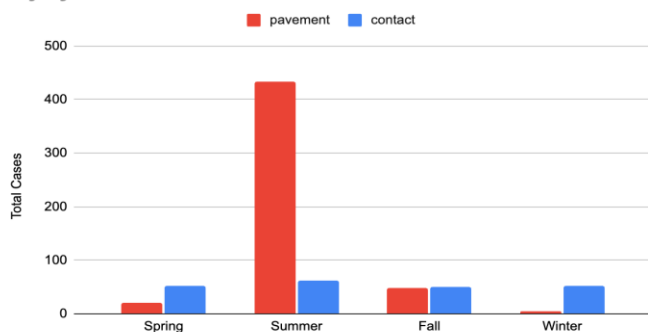


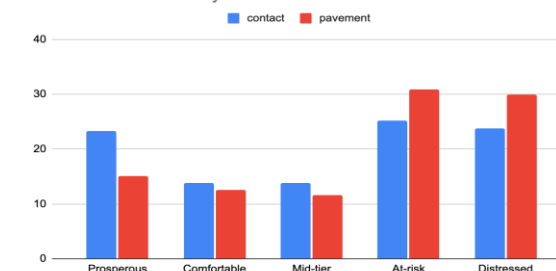
Table 1 - Social Determinants of Pavement Burns

Categories	Pavement Burns (n= 508, 69.9%)	Other Contact Burns (n= 219, 30.1%)	P-value
Patient Age (M±SD)	52.8±19.2	34.3±26.6	<0.001
Sex			0.015
Male	364 (71.7)	137 (62.6)	
Female	144 (28.3)	82 (37.4)	
Patient Age			<0.001
0-4.9	13 (2.6)	58 (26.5)	
5-9.9	0 (0.0)	8 (3.7)	
10-14.9	5 (1.0)	7 (3.2)	
15-19.9	5 (1.0)	9 (4.1)	
20-44.9	135 (26.6)	50 (22.8)	
45-64.9	207 (40.7)	55 (25.1)	
65 and over	143 (28.1)	32 (14.6)	
Homeless			<0.001
Yes	92 (18.1)	3 (1.4)	

Table 2 - Clinical Determinants of Pavement Burns

	Pavement Burns (n= 508, 69.9%)	Other Contact Burns (n= 219, 30.1%)	P-value
Alcohol Intoxication	42 (33.1)	4 (50.0)	0.327
Drug Intoxication	125 (67.6)	15 (68.2)	0.954
Initial Glasgow Coma Scale (GCS) Score (M±SD)	13.1±4.0	14.8±1.5	<0.001
Initial Temperature (M±SD)	37.1±2.0	36.8±1.0	0.015
TBSA Total (M±SD)	5.8±5.8	2.5±3.4	<0.001
Length of stay (M±SD)	20.3±29.4	8.1±10.3	<0.001
Admitted to ICU	143 (28.1)	22 (10.0)	<0.001
Length of stay in ICU (M±SD)	11.3±18.3	5.0±6.3	0.003
On Ventilator	91 (17.9)	5 (2.3)	<0.001
Ventilator Days (M±SD)	12.5±20.2	4.6±3.4	0.386
Mortality	37 (7.3)	4 (1.8)	0.003

Distressed Community Index Quartile



RESULTS

- 727 patients with identified contact burns
 - 508 were pavement burns (69.9%)
- Patients with pavement burns had:
 - Greater TBSA (5.8% vs 2.5%)
 - Higher mortality (7.3% vs 1.8%)
 - Longer hospital stay (20.3 days vs 8.1 days)
 - More frequent ICU admission (48.1% vs 21.8%) and longer ICU stay (11.3 days vs 5 days)
 - Homelessness was more common (19.8% vs 1.6%).

CONCLUSIONS

- Pavement burn admissions have increased dramatically over a 10-year period, with the highest proportion in 2024 (26.7%). There is a clear burden of pavement burns during the summer months (69.9%).
- Pavement burns put patients at higher risk of complication and death compared to other contact burns
- Targeted prevention strategies such as summer-season outreach, resource allocation strategies may be required for community safety.
- Standardized clinical guidelines may improve outcomes in pavement burns compared to other contact mechanisms

REFERENCES

