

Demographics of Patients Undergoing Surgery for Cervical and Thoracolumbar Spine Surgery

Alejandra Marquez¹, Kaveri Iyengar², Pradyun Sangineni², Carter Burns², Lorenzo Deveza²
¹University of Houston Tilman J. Fertitta Family College of Medicine, ²Baylor College of Medicine, TX
 ale.marquez0323@gmail.com

Disclosures: Lorenzo Deveza, Lento Medical, Inc.

INTRODUCTION: Patient demographics and access to healthcare significantly impact outcomes especially in diverse patient populations. Factors such as age, sex, primary language, emergency department presentation, and continuity with primary care reflect differences in social resources. These factors directly shape treatment decisions and recovery outcomes in orthopedic spine trauma care. Describing these features is key to understanding outcomes and planning tailored discharge support. We characterized the demographic profile of adults undergoing surgery for cervical and thoracolumbar traumatic spine fractures at a single urban Level I trauma center.

METHODS: We retrospectively identified 199 adults who underwent operative fixation for traumatic cervical (n=90) or thoracolumbar (n=109) fractures at a Level I hospital between January 2013 and December 2024. Variables included age, sex, primary language, emergency department (ED) presentation, primary care provider (PCP) status, discharge disposition, laminectomy, length of stay (LOS), and clinic follow-up within 90 days. Results are shown separately for cervical and thoracolumbar cohorts and for the combined cohort.

RESULTS SECTION: In this cohort of 199 adults (cervical n=90, thoracolumbar n=109) 81% were male and the mean age was 48.5 years. English was the primary language for 67% and Spanish for 32%. About 23% arrived through the ED, and only 32% had a primary care provider (PCP). Most of the patients were discharged home (64%); median hospital Length of Stay (LOS) was 10 days (cervical) and 14 days (thoracolumbar); 58% attended clinic follow-up within 90 days. Across both regions, head and chest injuries were most common, while pelvic injuries were least frequent. Cervical vs thoracolumbar: Cervical patients were older (median 49 vs 45 years) and more often English-Speaking (71% vs 64%), whereas thoracolumbar patients more often had a PCP (39% vs 23%); sex distribution was similar (female 21% vs 17%).

DISCUSSION: In our Level I Trauma center population surgically treated traumatic spine patients were predominantly middle-aged men, with one-third Spanish speaking and most lacking a PCP. Cervical patients tended to be older, while thoracolumbar patients more often reported a PCP. These demographic patterns show that language access and primary care connections are important for planning post trauma care. Slightly more than half of patients returned for follow-up within 90 days, highlighting how social resources may affect continuity of care. Limitations of this study include its single-center retrospective design, which may limit generalizability.

SIGNIFICANCE/CLINICAL RELEVANCE: This study examines the demographics of adults undergoing surgery for spine trauma, highlighting differences in language, age, and access to a primary care provider. Understanding these patterns can help improve discharge planning and support follow-up for diverse patient populations.

Table 1: Cervical & Thoracolumbar Descriptive Statistics

Variable	Category/Stat	Cervical (n=90)	Thoracolumbar (n=109)	Combined (n=199)
Age (years)	Median	49	45	—
Age (years)	Mean	50.2	47.1	48.5
Age (years)	Range	26–98	19–84	19–98
Sex	Female	19 (21.1%)	19 (17.4%)	38 (19.1%)
Sex	Male	71 (78.9%)	90 (82.6%)	161 (80.9%)
Primary language	English	64 (71.1%)	70 (64.2%)	134 (67.3%)
Primary language	Spanish	25 (27.8%)	39 (35.8%)	64 (32.2%)
Primary language	Sign language	1 (1.1%)	0 (0.0%)	1 (0.5%)
ED presentation	Yes	21 (23.3%)	25 (22.9%)	46 (23.1%)
ED presentation	No	69 (76.7%)	84 (77.1%)	153 (76.9%)
Has PCP	Yes	21 (23.3%)	42 (38.5%)	63 (31.7%)
Has PCP	No	69 (76.7%)	67 (61.5%)	136 (68.3%)
Follow-up within 90 days	Returned	46 (51.1%)	69 (63.3%)	115 (57.8%)
Follow-up within 90 days	Lost to follow-up	44 (48.9%)	40 (36.7%)	84 (42.2%)
Laminectomy	Yes	44 (48.9%)	53 (48.6%)	97 (48.7%)
Laminectomy	No	45 (50.0%)	56 (51.4%)	101 (50.8%)
Laminectomy	N/A	1 (1.1%)	0 (0.0%)	1 (0.5%)
Disposition	Home	57 (63.3%)	70 (64.2%)	127 (63.8%)
Disposition	Inpatient rehab	19 (21.1%)	32 (29.4%)	51 (25.6%)
Disposition	SNF	13 (14.4%)	6 (5.5%)	19 (9.5%)
Disposition	Other	1 (1.1%)	1 (0.9%)	2 (1.0%)
Hospital LOS (days)	Median (IQR)	10 (7–21)	14 (9–24)	—
Hospital LOS (days)	Mean	19.0	19.5	19.3
Hospital LOS (days)	Range	2–87	5–136	—

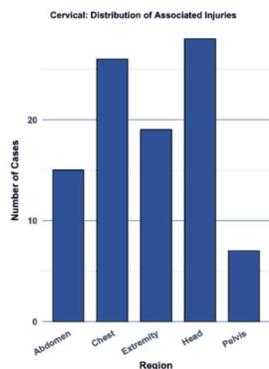


Figure 1. Cervical: Distribution of Associated Injuries

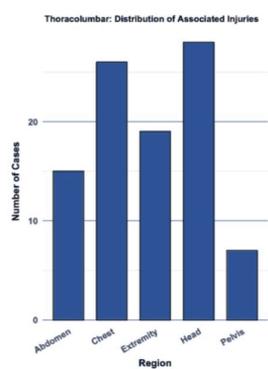


Figure 2. Thoracolumbar: Distribution of Associated Injuries