Post-surgical Follow Up in the Medicaid Orthopaedic Trauma Population

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INTRODUCTION: Post-surgical follow-up in the orthopaedic trauma population is not well studied. Medicaid patients generally face greater challenges with care accessibility due to socioeconomic factors and are poorly represented in the literature. A patient's likelihood to follow up plays a significant role in clinical decision making but these decisions are often made based on heuristics. The purpose of this study is identify factors associated with likelihood to not complete follow up in the Medicaid orthopaedic trauma population.

METHODS: We conducted a retrospective review of orthopaedic trauma patients that underwent surgery at a single County Level I trauma center for acute fracture between 1/1/2021 and 12/31/2022. All patients had Medicaid insurance, were at least 18 years of age, and were empaneled to the Department of Health Services of Los Angeles County (DHS). Hand, wrist, and injuries involving soft tissue only were excluded. Patients that were deceased within the study period were excluded. Electronic records were reviewed to assess the length of patients' follow up as well as the ordered follow up course from the physician. Patients with 1 year of continuous post-surgical follow up or a physician order for follow up as needed were deemed ot have completed follow up. Any patient not attending a postoperative appointment within 1 year were deemed to have incomplete follow up. Summary statistics were calculated for all parameters of interest. Univariate analysis followed a case control design to identify associations with not completing follow up, and included chi squared test for categorical variables, and T test or Mann Whitney U test for continuous variables based on distribution. Multivariate analysis will involve multiple logistic regression to identify factors independently associated with greater odds of not completing post-surgical follow up.

RESULTS: 397 patients were included in our interim analysis. 269 (67.8%) were male and mean age was 45.2 years. 247 (62.2%) spoke English as a first language while 138 (34.8%) spoke Spanish. 242 (61%) identified as Latino/Hispanic, 37 (9.3%) White/Non-Hispanic, 79 (19/9%) Black/African-American, 15 (3.8%) Asian/Pacific Islander, 2 (0.5%) Native, 22 (5.5%) Mixed/Other. 90 (22.7%) identified as current smokers, 38 (9.6%) as daily alcohol users, 91 (22.9%) as marijuana users, and 32 (8.1%) as other illicit drug users. Of patients with known employment status at time of injury, 208 (52.4%) were employed, 98 (24.7%) were unemployed, 65 (16.4%) were retired, 9 (2.3%) were students, and 5 (1.3%) were disabled. 115 (29%) sustained a ground level fall, 84 (21.2%) a fall from height, 48 (12.1%) a motor vehicle accident, 53 (13.4%) a bicycle or motorized two-wheeler accident, 36 (9.1%) a pedestrian vs auto accident, 20 (5%) a gunshot wound, 34 (8.6%) a sports injury, 7 (1.8%) sustained assault. 149 (37.5%) patients underwent outpatient surgery. Of the inpatient surgical patients, mean length of stay was 7.97 days. 196 (46.6%) patients completed post-surgical follow up while 225 (53.4%) patients were lost to follow up. 180 (45.3%) completed follow up while 217 (54.7%) were unable to complete follow up. Univariate analyses showed significant associations between incomplete follow up an age ($p<0.001$), sex ($p<0.001$), language ($p<0.001$), race/ethnicity ($p=0.021$), smoking status ($p=0.004$), active marijuana use ($p<0.001$), and mechanism of injury ($p=0.015$).

By the time of presentation, we anticipate 400 additional patients for study inclusion and completion of the final analysis with multiple logistic regression model.

DISCUSSION AND CONCLUSION: Post-surgical follow up is a variable quality that is relevant for clinical decision making in orthopaedic trauma, though little is published on this topic. This is largest study to date of follow up in the Medicaid orthopaedic trauma population. We find significant associations in univariate analyses between a number of demographic and social factors with incomplete follow-up. Final analysis will contribute to our understanding of independent risk factors for incomplete follow-up. Our findings are significant for orthopaedic trauma care and highlight the potential for selection bias with strict follow up requirements for academic journals.

Table 1 - Univariate Analysis of Factors Associated with Follow Up

	Overall	% of Overall	Completed Follow Up	%	No Show	%	Chi-Stat/T-stat/ U-stat	Pvalue
Total Patients	**397**	100	**180**	45.3	**217**	54.7		
Length of Follow Up (days)	165.1		271.0		77.3		17.7	**0.0000**
Driving Distance to Hospital (miles)	15.2		14.5		15.8		0.77	0.4437
Average Age	45.2		49.2		41.9		3.85	**0.0001**
Sex								
Female	128	32.2	75	58.6	53	41.4	12.61	**0.0004**
Male	269	67.8	105	39.0	164	61.0		
Language								
English	247	62.2	87	35.2	160	64.8	27.76	**0.0000**
Spanish	138	34.8	87	63.0	51	37.0		
Korean	4	1.0	2	50.0	2	50.0		
Other	8	2.0	4	50.0	4	50.0		
Race/ Ethnicity								
Latino/ Hispanic	242	61.0	126	52.1	116	47.9	13.26	**0.0210**
White/ Non- Hispanic	37	9.3	12	32.4	25	67.6		
Black/ African- American	79	19.9	27	34.2	52	65.8		
Asian/ Pacific Islander	15	3.8	7	46.7	8	53.3		
Native Indigenous	2	0.5	0	0.0	2	100.0		
Mixed/ Other	22	5.5	8	36.4	14	63.6		
Smoking Status								
None	290	73.0	141	48.6	149	51.4	11.05	**0.0040**
Former	17	4.3	11	64.7	6	35.3		
Current	90	22.7	28	31.1	62	68.9		
EtOH Use								
None	225	56.7	108	48.0	117	52.0	2.52	0.2832
Social	134	33.8	59	44.0	75	56.0		
Daily	38	9.6	13	34.2	25	65.8		
Illicit Drug Use (Excluding Marijuana)								
None	365	91.9	169	46.3	196	53.7	1.21	0.2721
Any	32	8.1	11	34.4	21	65.6		
Marijuana								
None	300	75.6	157	52.3	143	47.7	24.19	**0.0000**
Former	6	1.5	2	33.3	4	66.7		
Current	91	22.9	21	23.1	70	76.9		
Mechanism Of Injury								
Ground Level Fall	115	29.0	63	54.8	52	45.2	17.49	**0.0145**
Fall from Any Height	84	21.2	43	51.2	41	48.8		
Motor Vehicle Accident	48	12.1	15	31.3	33	68.8		
Motorized Two Wheeler Accident	53	13.4	19	35.8	34	64.2		
Auto vs Pedestrian	36	9.1	18	50.0	18	50.0		
Gunshot Wound / Ballistic Injury	20	5.0	5	25.0	15	75.0		
Sports Accident	34	8.6	16	47.1	18	52.9		
Assault	7	1.8	1	14.3	6	85.7		
Isolated vs Multiple Injury								
Isolated Injury	339	85.4	155	45.7	184	54.3	0.03	0.8556
Polytrauma	58	14.6	25	43.1	33	56.9		
Open Injury								
Closed	355	89.4	166	46.8	189	53.2	3.01	0.2217
Open	42	10.6	14	33.3	28	66.7		
Employment Status								
Student	9	2.3	4	44.4	5	55.6	8.75	0.1883
Employed	208	52.4	91	43.8	117	56.3		
Unemployed	98	24.7	40	40.8	58	59.2		
Retired	65	16.4	37	56.9	28	43.1		
Disabled	5	1.3	4	80.0	1	20.0		
Unknown/ Did Not Answer	12	3.0	4	33.3	8	66.7		