

Operative Exploration vs Selective Non-Operative Management in Hemodynamically Stable Patients with Penetrating Upper Extremity Trauma: A Study in a Federally Qualified Health Center

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Background:

- Penetrating upper extremity trauma (PUET) poses unique challenges due to **the risk of neighboring neurovascular and bone injury**
- Hemodynamically stable patients are often managed conservatively with **selective non-operative management (SNOM)**
- SNOM effectiveness in upper extremity injuries remains unclear, especially in Federally Qualified Health Centers (FQHCs)
- This study aims to evaluate whether SNOM provides outcomes comparable to surgery for PUET in FQHC settings

Methods:

- Retrospective chart review of 101 patients was conducted for PUET within Zuckerberg San Francisco General Hospital between 2019-2024
- Data collected includes the mechanism of injury, types of SNOM, nature and timing of operative intervention (if any), and outcomes after discharge from the hospital
- Comparative analyses identified factors associated with the likelihood of operative intervention and compared the distributions of these variables between those who underwent surgery and those who did not

Results:

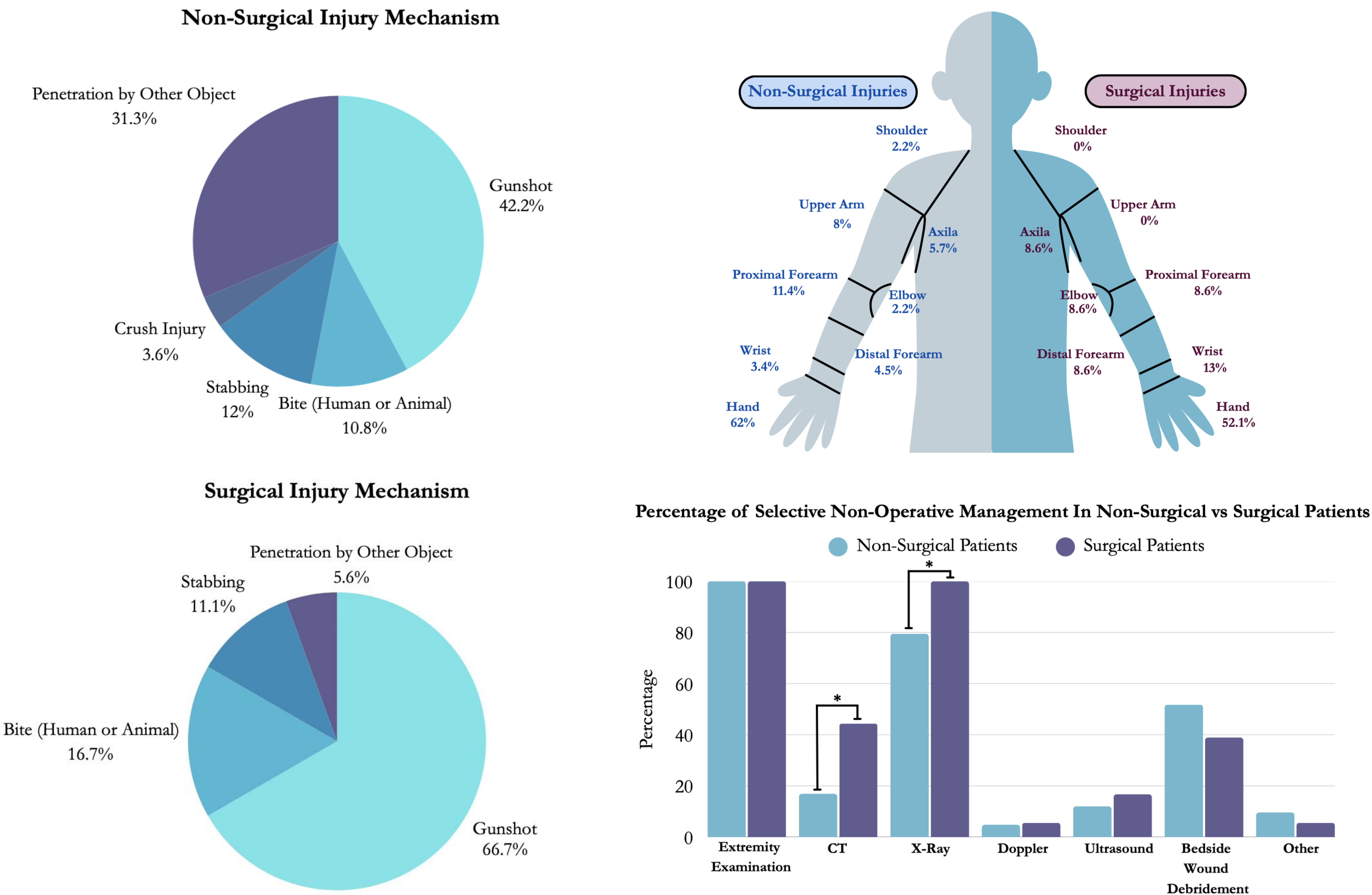


Table: Post-Discharge Outcomes of Non-Surgical vs Surgical Patients

	Total n=101	Non-Surgical Patients n=83	Surgical Patients n=18	p-value
Post-Discharge Outcomes (%)				
ED Visit Post-Discharge	18 (17.8%)	11 (13.3%)	7 (38.9%)	0.0171*
Infection	13 (12.9%)	7 (8.4%)	6 (33.3%)	0.0111*
Nerve Deficits	19 (18.8%)	11 (13.3%)	8 (44.4%)	0.0052*
Surgery Post-Discharge	5 (5.0%)	3 (3.6%)	2 (11.1%)	0.2158
Attended Hand Follow-Up	17 (16.8%)	8 (9.6%)	9 (50.0%)	0.0003*
Attended Occupational Therapy	17 (16.8%)	8 (9.6%)	9 (50.0%)	0.0003*

Discussion:

- Gunshot wounds were the most common injury mechanism, with most injuries located on the hand
- All patients underwent extremity examination, with surgical patients more frequently receiving CT or X-ray imaging
- Surgical patients were more likely to have adverse outcomes post-discharge**, including unexpected ED visits and nerve deficits
- Those who received surgery were **significantly more likely to attend follow-up care**, such as occupational therapy or follow-up with the hospital's hand service

Future Directions:

- Larger, multi-site studies across FQHCs are needed to confirm the generalizability of these findings
- Future research should also assess long-term functional outcomes, patient-reported measures, and the cost-effectiveness of SNOM compared to surgical intervention
- Identifying barriers to follow-up care and rehab could inform strategies to improve recovery and service utilization in underserved settings

