

A Better Way To Manage Patients With Fractured Mandibles?

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INTRODUCTION

- Day case surgery (DCS) for patients with fractured mandibles offers financial and social benefits over emergency admission (EM).
- It is unclear whether delays in initiation of prophylactic antibiotics and fixation may increase number of post-operative infections and poorer patient outcomes [1]
- There is significant variability in UK practices of antibiotic prescribing [2] and some units utilising dedicated trauma OMFS lists whilst the majority still use CEPOD operating lists

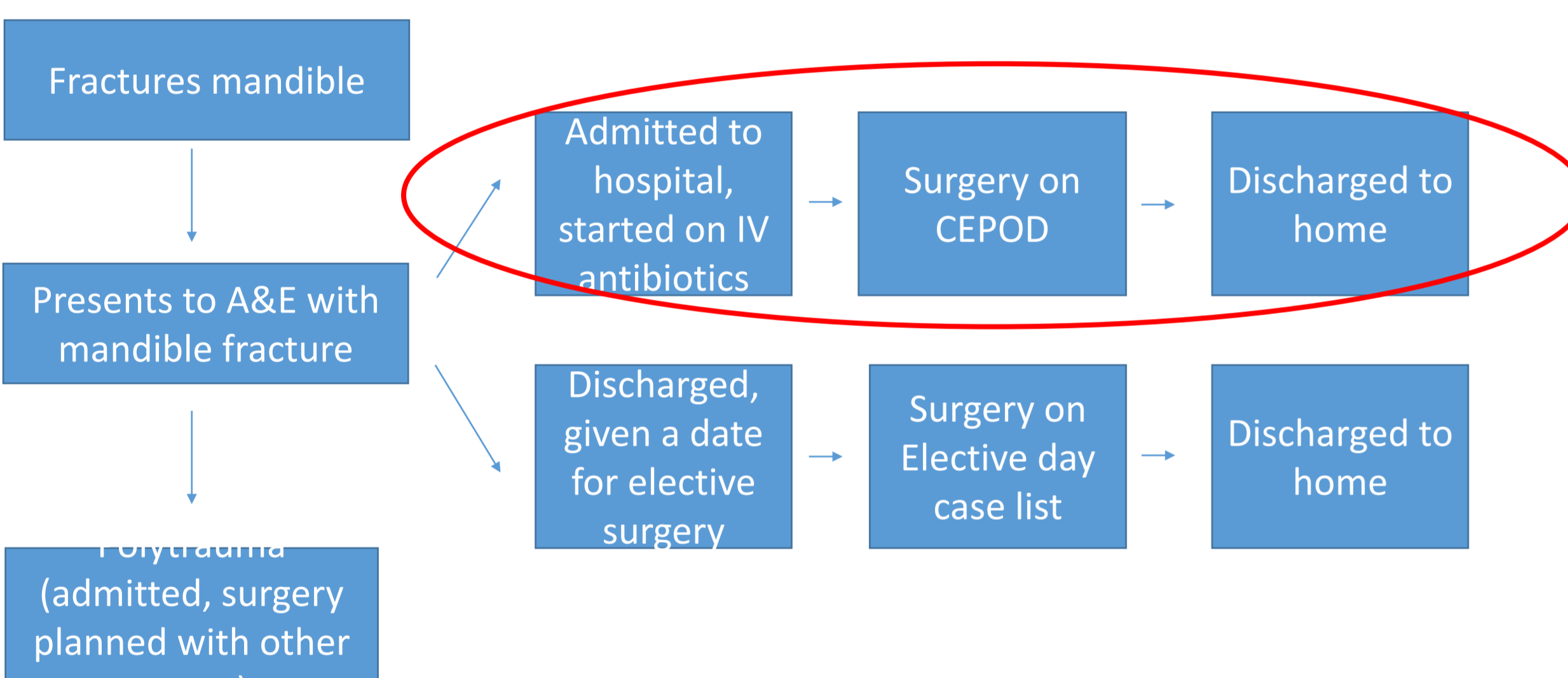


Figure 1: Patient flow following traumatic mandibular fractures

MATERIALS/METHOD

- Trainee led collaborative snapshot audit of all mandible fractures presenting to participating UK OMFS departments between December 2020 and June 2021
- Recorded information on demographics, mechanism, injury, treatment and outcomes at 30 day follow up. This information was anonymised at the point of entry, and was all routinely collected information.
- Analyses were carried out using SPSS v25 (IBM), with non parametric tests as appropriate (Kruskal Wallis H test for continuous or nominal data, Kendall's tau b for dichotomous
- Resource use and costs were calculated using a micro costing analysis of individual patient level data. Post operative complications were defined as any unplanned antibiotics or readmission.

		Unplanned intervention (antibiotics or readmission) (n=65)	No unplanned intervention (n=652)	Kendall's Tau-b OR Chi-square	Kruskal-Wallis H	p
Age (median, range)		36 (16,72)	29 (3,94)		8.331	1 .004
Sex (%)	Male	46 (7.7)	550 (92.3)			
	Female	19 (15.7)	102 (84.3)	-0.104		.023
Smoking status (%)	Non smoker	12 (5.9)	191 (94.1)			
	Ex smoker	5 (14.7)	29 (85.3)			
	Smoker	44 (11.2)	350 (88.8)	-0.087		0.008
cigarettes smoked	1-5/day	3 (4.8)	59 (95.2)			
	6-10/day	11 (9.6)	103 (90.4)			
	11-20/day	19 (16.5)	96 (83.5)			
	20+/day	8 (15.4)	44 (84.6)	0.117		0.013
Alcohol units numeric (%)	Teetotal	5 (4.6)	103 (95.4)			
	<14 Units/week	18 (6.3)	266 (93.7)			
	>15 units/week	18 (12.7)	124 (87.3)			
	Alcohol dependant	14 (23.3)	46 (76.7)	0.157		<0.001
ASA numeric (%)	1	14 (6.3)	207 (93.7)			
	2	47 (10.5)	401 (89.5)			
	3	3 (6.8)	41 (93.2)			
	4	1 (3.3)	2 (66.7)	0.53		0.112
Medically fit?	Yes	19 (6.1)	290 (93.9)			
	No	46 (11.3)	362 (88.7)	5.606	1	0.018
Oral hygiene numeric	Good	8 (5.5)	137 (94.5)			
	Fair	27 (7.5)	335 (92.5)			
	Poor	29 (14.8)	167 (85.2)	0.112		0.003
Pre operative antibiotic use? (%)	Yes	58 (9.1)	58 (9.1)			
	No	67 (90.5)	7 (9.5)	0.012	1	0.833
Post operative antibiotic use? (%)	Yes	10 (9.1)	601 (90.9)			
	No	5 (9.1)	50 (90.9)	0.000	1	1.00
Extended course of post operative antibiotics? (%)	Yes	47 (9.5)	446 (90.5)			
	No	18 (8.1)	205 (91.9)	0.397	1	0.577
Time from injury to presentation, hours minutes median, (IQR)		13h 20m, (34h 7m)	6h 59m (22h 59m)	5.111	1	0.024
Estimated time of inj to abx, hours minutes median, (IQR)		13h (34h)	7h (23h)	5.131	1	0.023
Time from injury to surgery hours minutes median, (IQR)		46h 10m (48h 29m)	50h (81h 57m)	.662	1	0.416
Time from presentation to surgery hours minutes median, (IQR)		30h 46m (30h 33m)	53h 24m (34h 33m)	.033	1	0.855

CONCLUSIONS

- Antibiotic prophylaxis appears to have less effect on complications following ORIF mandible than patient health behaviors
- Pre operative IV antibiotic prophylaxis may not be necessary in patients with good health behaviors
- Elective management of mandibular fractures appears to be safe, cost effective and is suitable for a small subset of patients, though there may be potential for expansion of this to other groups

RESULTS

- This multi-centre represents 41 centres on 947 patients
- 1532 fractures of the mandible.
- 717 (76%) patients were managed surgically, with 65 (9.3%) as DCS.
- Postoperative complications occurred in 69 (9.6%). There was **no** correlation between management strategy and complications, or pre operative antibiotics and complications.
- Patients managed by DCS were older (mean 36 vs 30 years, p=0.001), more likely to be female (29%vs 16%, p=0.007), and less likely to have sustained their injury through interpersonal violence (45%vs 63% p=0.001).
- Median cost was £2595 in DCS, and £3346 in EM.

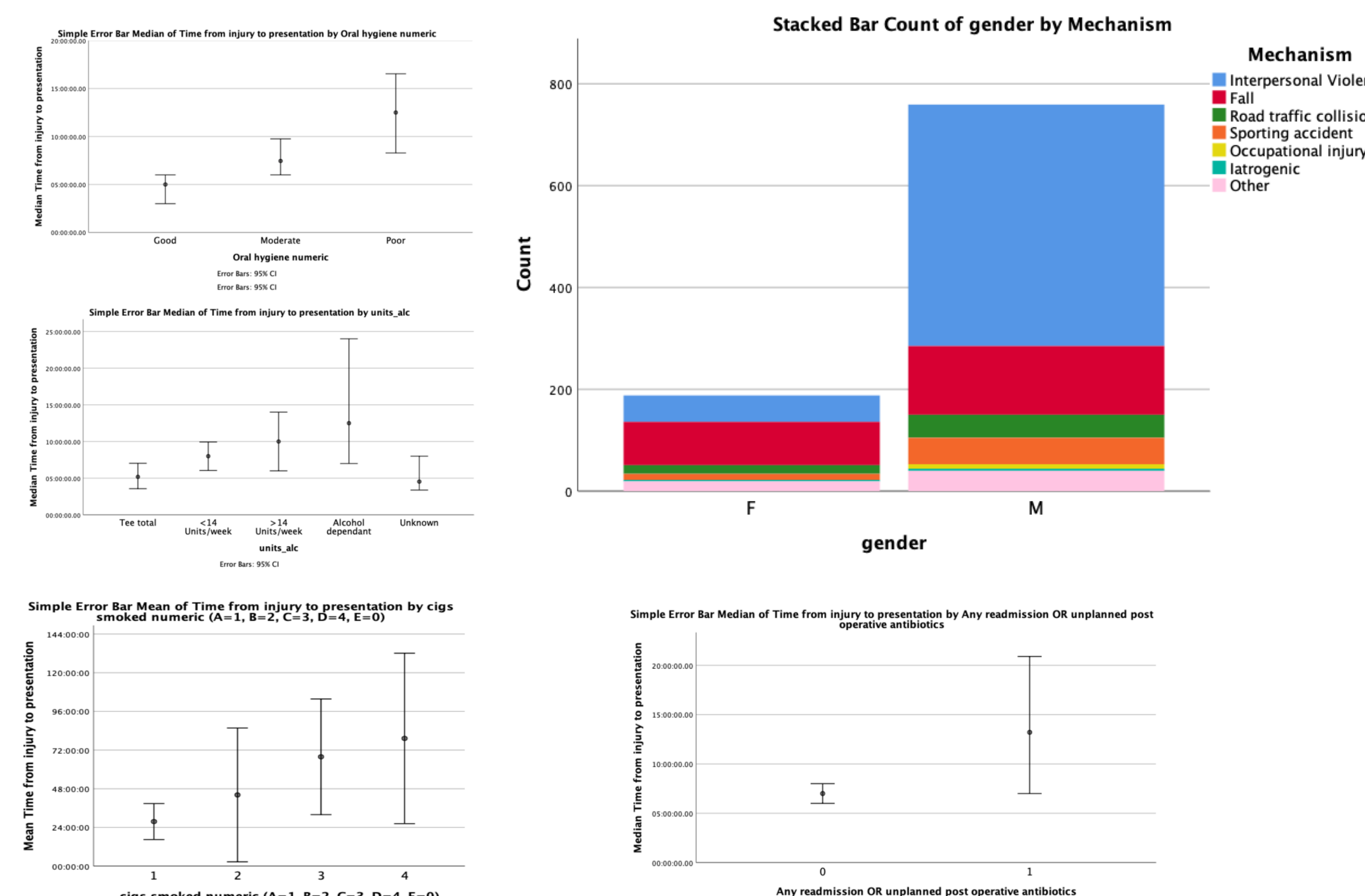


Figure 3: Health behaviours and gender confound time to presentation and mechanism

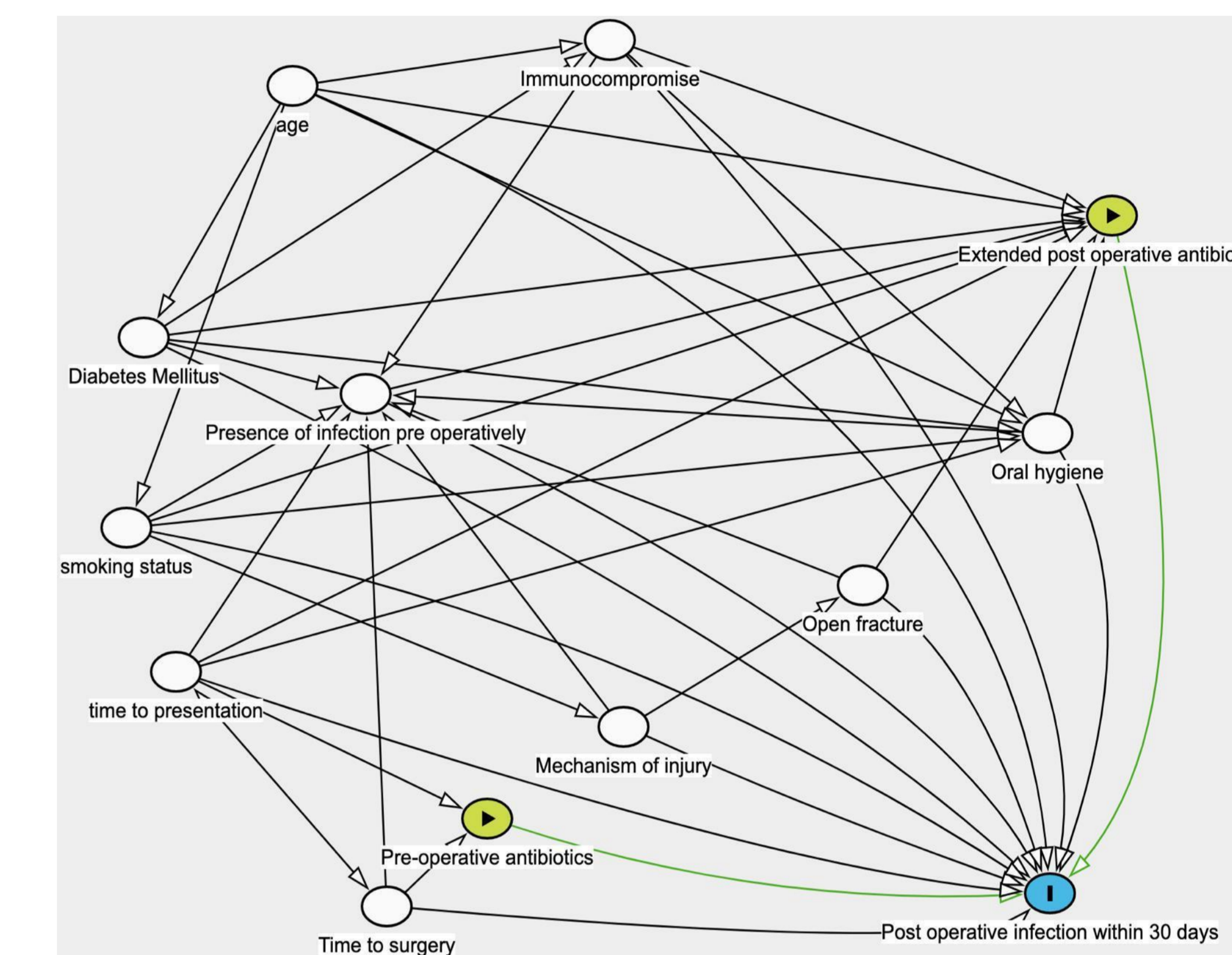


Figure 1: Direct acyclical graph showing factors related to outcomes following ORIF mandible

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