

Introduction

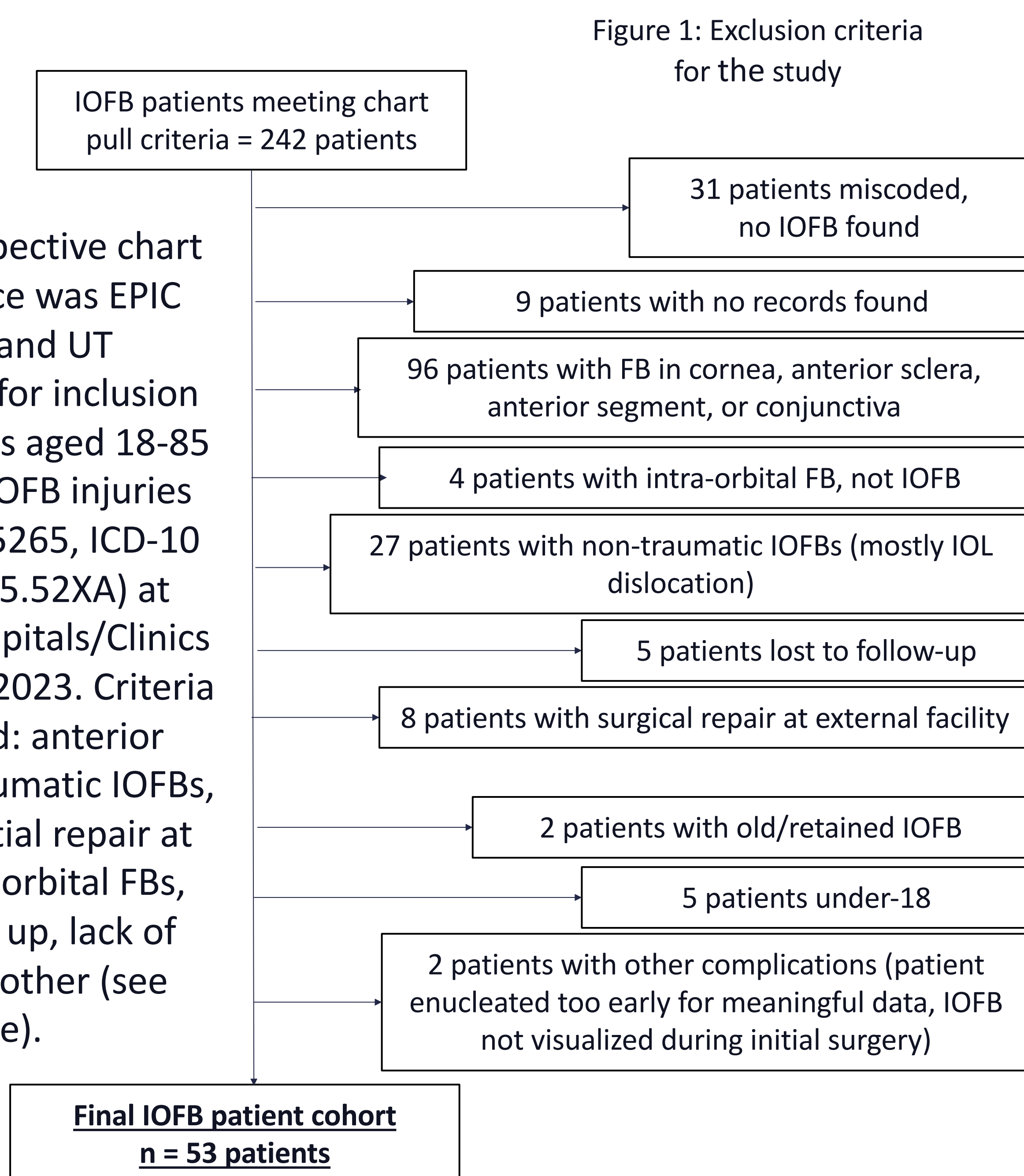
Intraocular foreign bodies (IOFBs) make up a large portion of open globe injuries and can cause severe vision loss. IOFBs entrapped in the posterior segment are a particularly significant cause of greatly diminished visual acuity and legal blindness (VA<20/200), prompting analysis of the factors that may influence visual outcomes.¹

Study Objectives

- Determine if there is a difference in initial, final, or change in visual acuity for patients with IOFB injuries treated with a single surgery vs. staged
 - Single: direct retina surgery with IOFB removal & globe closure (if not self-sealed)
 - Staged: primary closure by non-retina surgeon, secondary procedure by retina surgeon for IOFB removal
- Gather incidence data on IOFB material type, mechanism of injury, and use of safety glasses, and examine prevalence of vision-threatening sequelae in patients undergoing different surgical approaches

Methods

This study was a retrospective chart review. Our data source was EPIC systems Parkland and UT Southwestern. Criteria for inclusion in the study was patients aged 18-85 who were treated for IOFB injuries (CPT Codes 65260 or 65265, ICD-10 codes S05.51XA or S05.52XA) at Parkland and UTSW Hospitals/Clinics from 6/1/2011 to 5/23/2023. Criteria for exclusion included: anterior segment IOFBs, non-traumatic IOFBs, retained/old IOFBs, initial repair at external hospital, intraorbital FBs, patients lost to follow up, lack of medical records, and other (see adjacent figure).



Results

Demographics

Sex: 100% of patients identified as male
 Race: 60% of patients identified as Hispanic, 38% identified as non-Hispanic, 2% unknown
 Ethnicity: 87% of patients identified as White, 9% identified as Black, 4% unknown

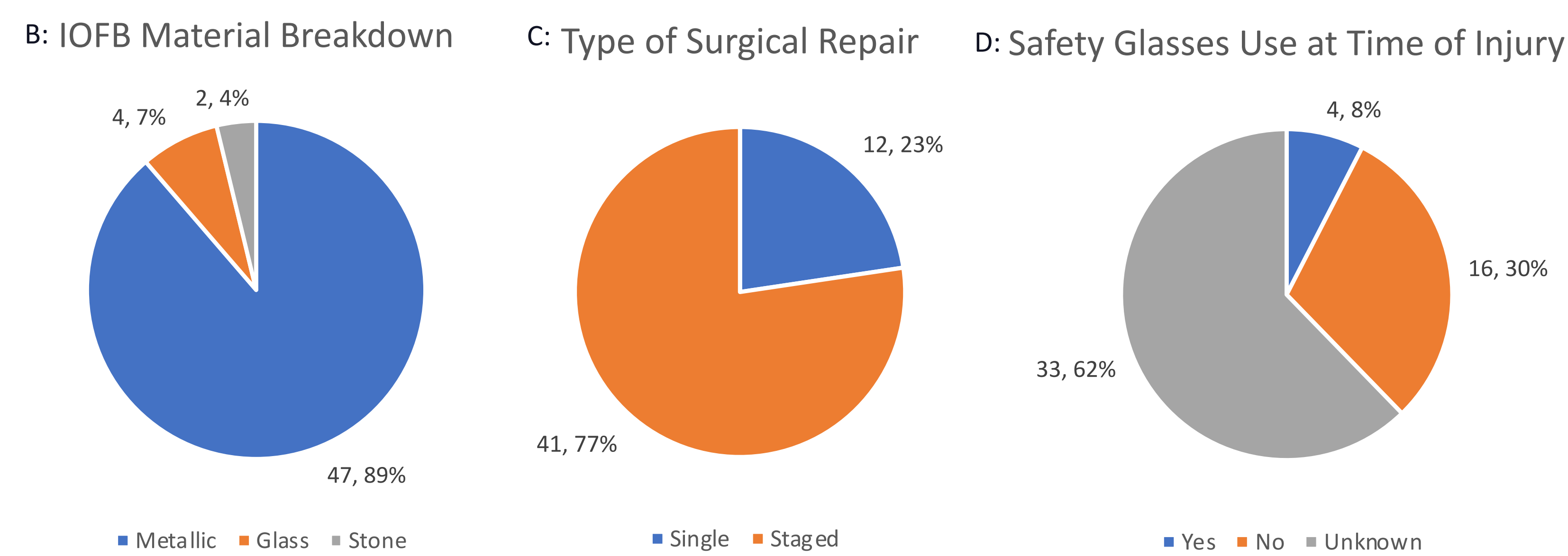
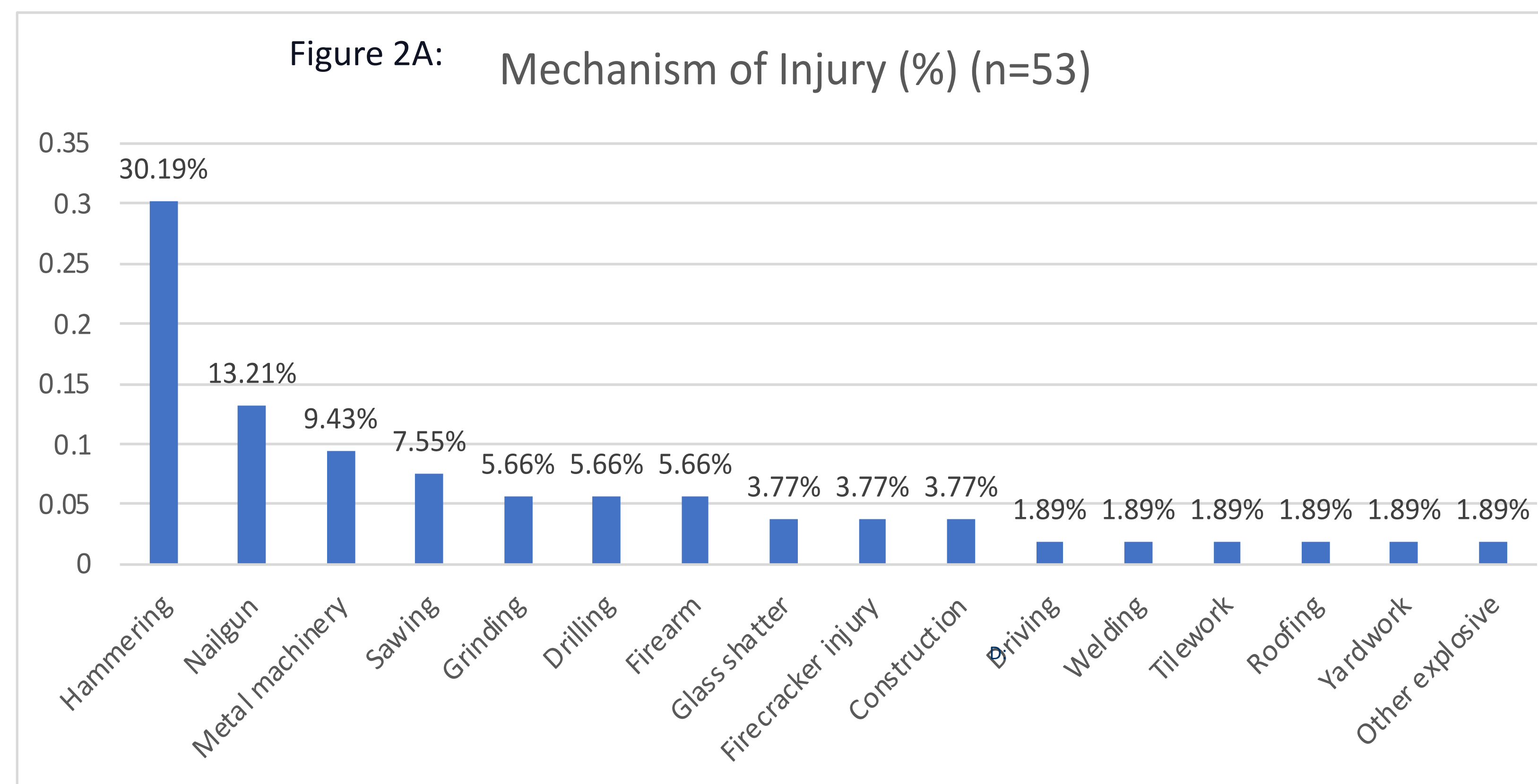


Figure 2: Hammering was the most common mechanism of injury, accounting for 30.2% of cases. Nail-gun injuries and using other metal machinery injuries were the next two most common mechanisms. 100% of injuries were penetrating injuries (A). The IOFB material types were metallic (89%), glass (7%), and stone (4%) (B). 77% of patients underwent single surgical repair, while 23% underwent staged repair (C). Data on safety glasses use was available for 20 patients, amongst whom 25% affirmed and 75% denied use (D).

Sequela	Prevalence of Sequela in Patient Population by Surgical Repair Type		p-Value
	Single (n=12)	Staged (n=41)	
Scleral Laceration	0.083	0.439	0.0378
Vitreous Hemorrhage	0.250	0.634	0.0245
Endophthalmitis	0.333	0.024	0.0073

Table 1: Patients presenting with scleral laceration (p=0.0378) and vitreous hemorrhage (p=0.0245), were significantly more likely to undergo staged surgical repair, while those presenting with endophthalmitis (p=0.0073) were more likely to undergo single surgical repair by Fisher's exact test. 16 other vision-threatening sequelae, including corneal laceration, cataract/lens injury, iris injury, choroidal hemorrhage/injury, evisceration/enucleation, total hyphema, retinal hole/tear/detachment, sub-macular hemorrhage, band keratopathy, toxicity, sympathetic ophthalmia, phthisis, epiretinal membrane, macular scar, corneal ulcer, and strabismus were found to have no significant difference in type of surgery.

Parameter	Type of Repair	Mean	Difference	t-statistic	p-value
Initial logMAR VA	Single	1.21	-0.35	-0.953	0.288
	Staged	1.56			
Final logMAR VA	Single	1.03	-0.33	-1.075	0.297
	Staged	1.36			
Change in logMAR VA	Single	-0.18	0.02	0.056	0.954
	Staged	-0.20			

Table 2: No significant difference in initial visual acuity, final visual acuity, or change in visual acuity was found between the single and staged surgical repair groups by 2 sample T-test.

Discussion

Our data suggest a predominance of IOFBs of metallic origin and a skew towards staged surgical repair for patients at Parkland & UTSW hospitals and clinics. The poor use of safety glasses within the data collected underscores the necessity of emphasizing eye protection in metal work and other high-risk occupations. Given the small sample size of our study, more data may help better elucidate visual outcome differences based on repair type and provide further insight into specific sequelae that increase the likelihood of a particular surgical approach.

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