



BACKGROUND

Firework-related burn injuries constitute a significant and preventable burden on UK burns and plastic surgery services and appear to be increasingly common. Firework-related A&E attendances rose from **2,141 in 2009/10 to 4,506 in 2014/15**,<sup>1</sup> and **increased 116.7% from pre-COVID-19 figures in 2021**.<sup>2</sup>

These remain readily purchasable by the public with sale, use and subsequent injury demonstrating significant seasonal variation, peaking in late October to early November, coinciding with Bonfire Night on the 5<sup>th</sup> of November—accounting for **74% of all firework burn presentations in one 10-year cohort**.<sup>3</sup>

Burn mechanisms include contact, flash, and flame burns alongside blast injuries, with the hands most frequently affected, followed by the head and neck; with nearly **39% of patients requiring surgical intervention**.<sup>3</sup>

Previous studies have identified young males as most commonly injured<sup>1, 3, 4</sup>, whilst NHS England data for 2020/21 recorded 116 hospital admissions, of which 21 involved children aged 14 or under. Despite legislative changes introduced under the Fireworks Act 2003, children and young people continue to sustain firework injuries, and stricter enforcement alongside public education remain priorities.<sup>4</sup>

Here, we seek to provide up-to-date observational data of firework-related burn injuries for our unit in the North West of England over an 8-year period, encompassing a population of 2.85 million.

OBJECTIVES

- 1
- To characterise the demographic, temporal, anatomical and service impact of firework-related burn injuries referred to a tertiary burns facility in the North West

METHODS

Retrospective review of online referrals to the regional burn units at Wythenshawe Hospital and Royal Manchester Children’s Hospital (Manchester University Hospitals NHS Foundation Trust) was performed to characterise firework and sparkler related injuries.

Referrals were retrieved from the MDSAS platform (17/5/2017–9/1/2026) and screened using select keywords to identify firework-related injuries. Demographic data and injury details (type, location and TBSA) were collected and analysed securely.

HIGHLIGHTS

234 firework burns over 9 years

78.6% male patients

37.2% children <16 (n = 87)

61.5% injuries in November

26.9% on 5<sup>th</sup> of the month

Median 1% TBSA to hand (62.8%), head & neck (37.2%)

81.5% require burns review

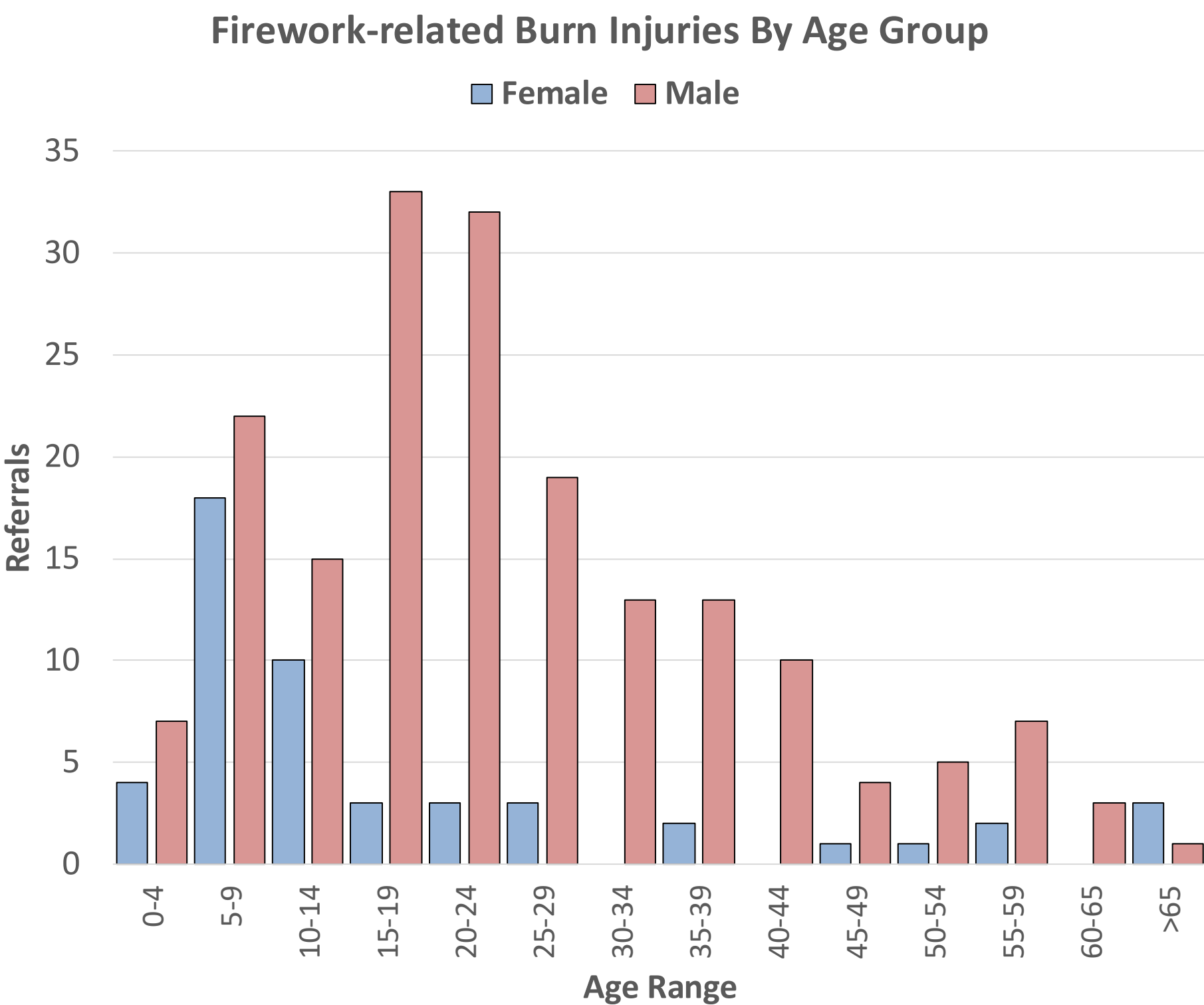
RESULTS

Overall

- 234 patients referred** over study period (May 2017- Jan 2026)

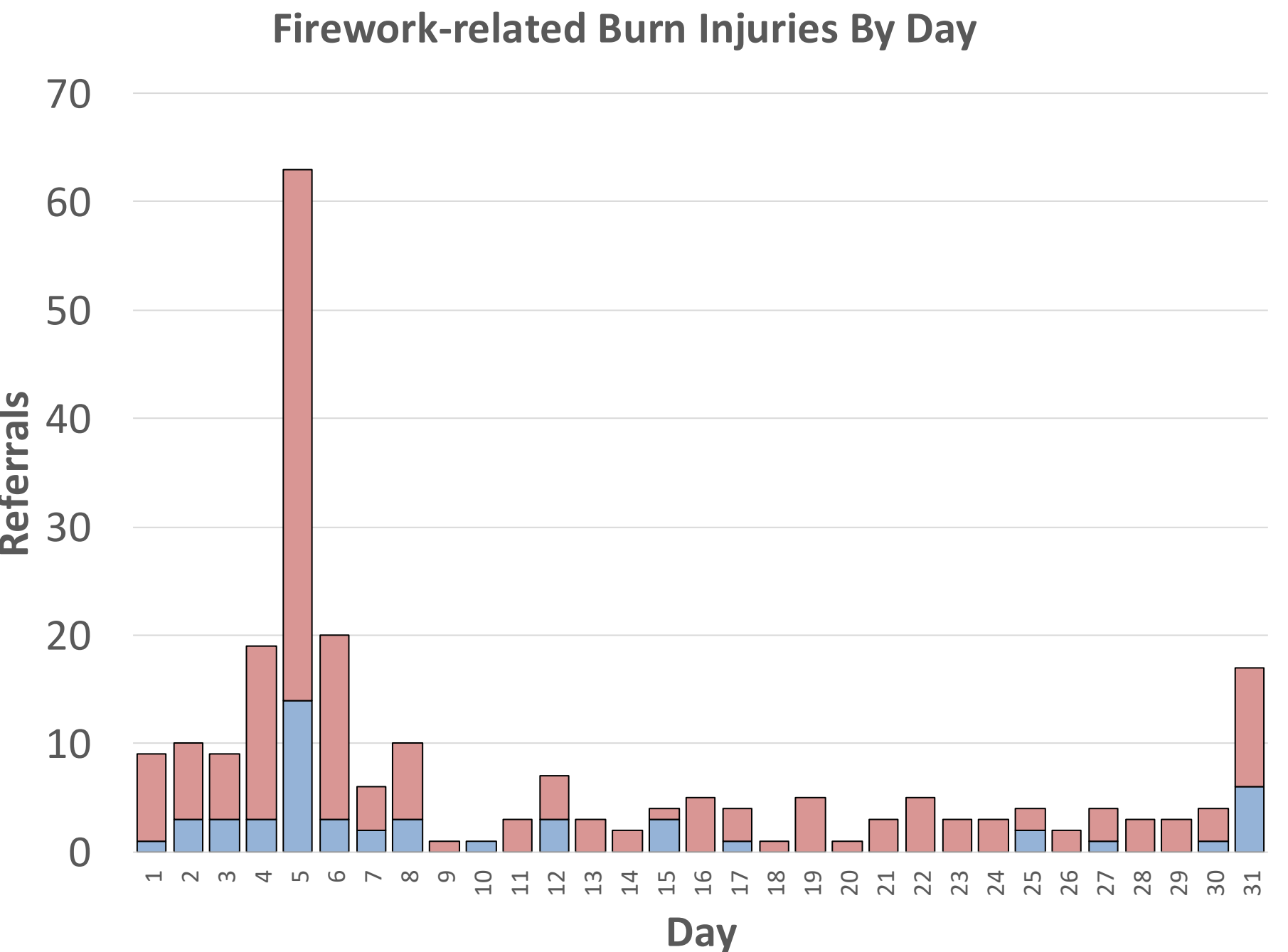
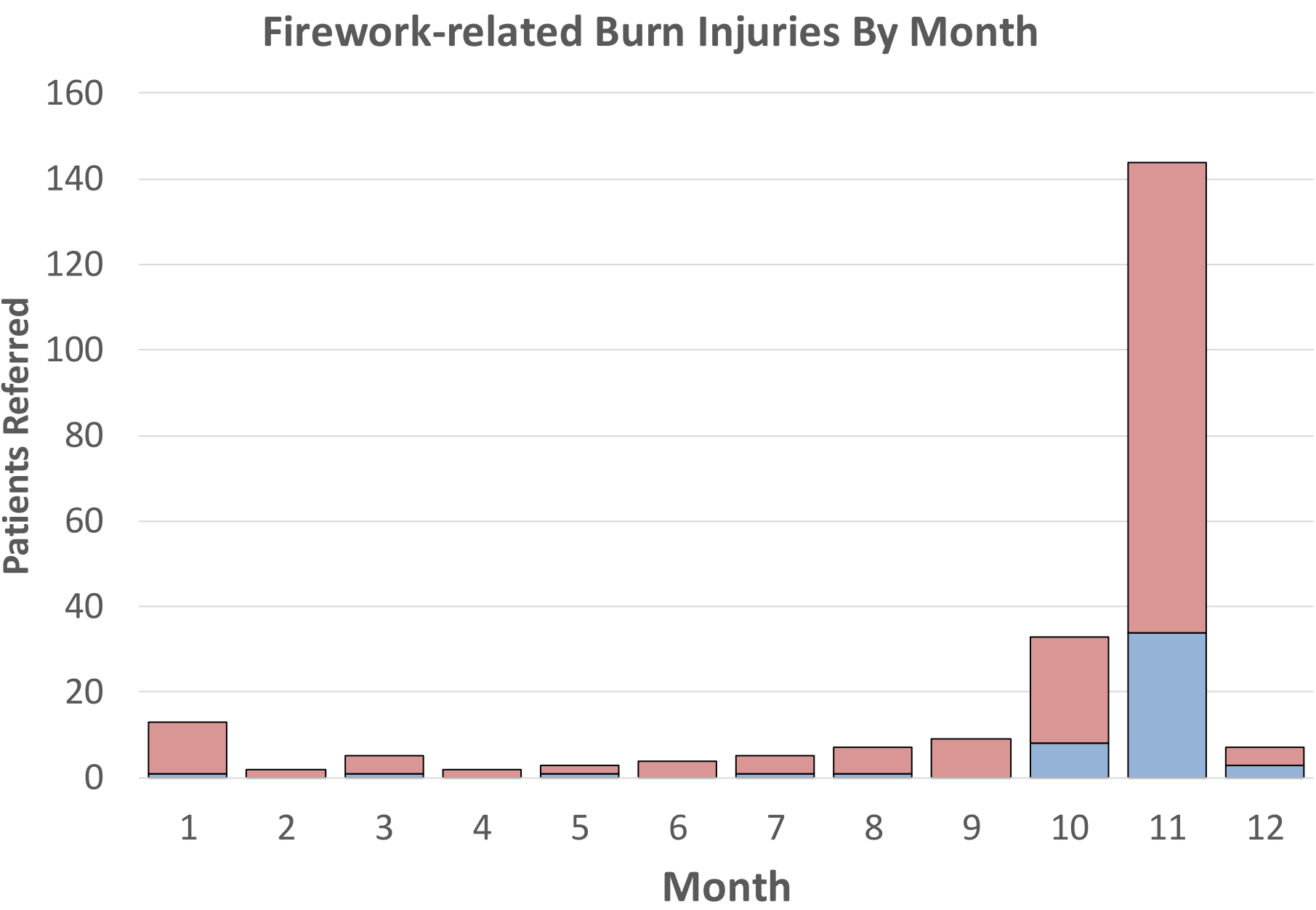
Demographics:

- Median **20 years of age**, mean 23.5, 2-74 range, IQR 11-32
- Males 3.7:1 more commonly referred** (184 (78.6%) male vs. 50 (21.4%) female)
- Male patients significantly older than females** (Mean 24.7 years vs. 18.9 years (Mann-Whitney U = 6173.5, p = 0.0002)
- 87 children <16 injured (37.2% of cohort)**, more commonly male (53; 61%, vs. 34; 39%,  $\chi^2 = 4.15$ , p = 0.042)
- Girls aged <16 represent 68% (34/50) of female patients injured**



Temporal Association

- Overall decline in firework-related injuries over period**, from peak of 36 in 2020 to trough 14 in 2023, uptick in 2025 to 28 (Pearson r = -0.674,/ p = 0.046)
- November and October account for 75.6% of injuries** (144/234; 61.5% & 33/234; 14.1% respectively) ( $\chi^2 = 907.3$ , p < 0.001 vs uniform distribution), smaller peak in January
- Day of month highly non-uniform with **cluster around Bonfire Night**. 5<sup>th</sup> of the month top with 63; **26.9% of injuries referred one day** ( $\chi^2 = 520.6$ , p < 0.001)

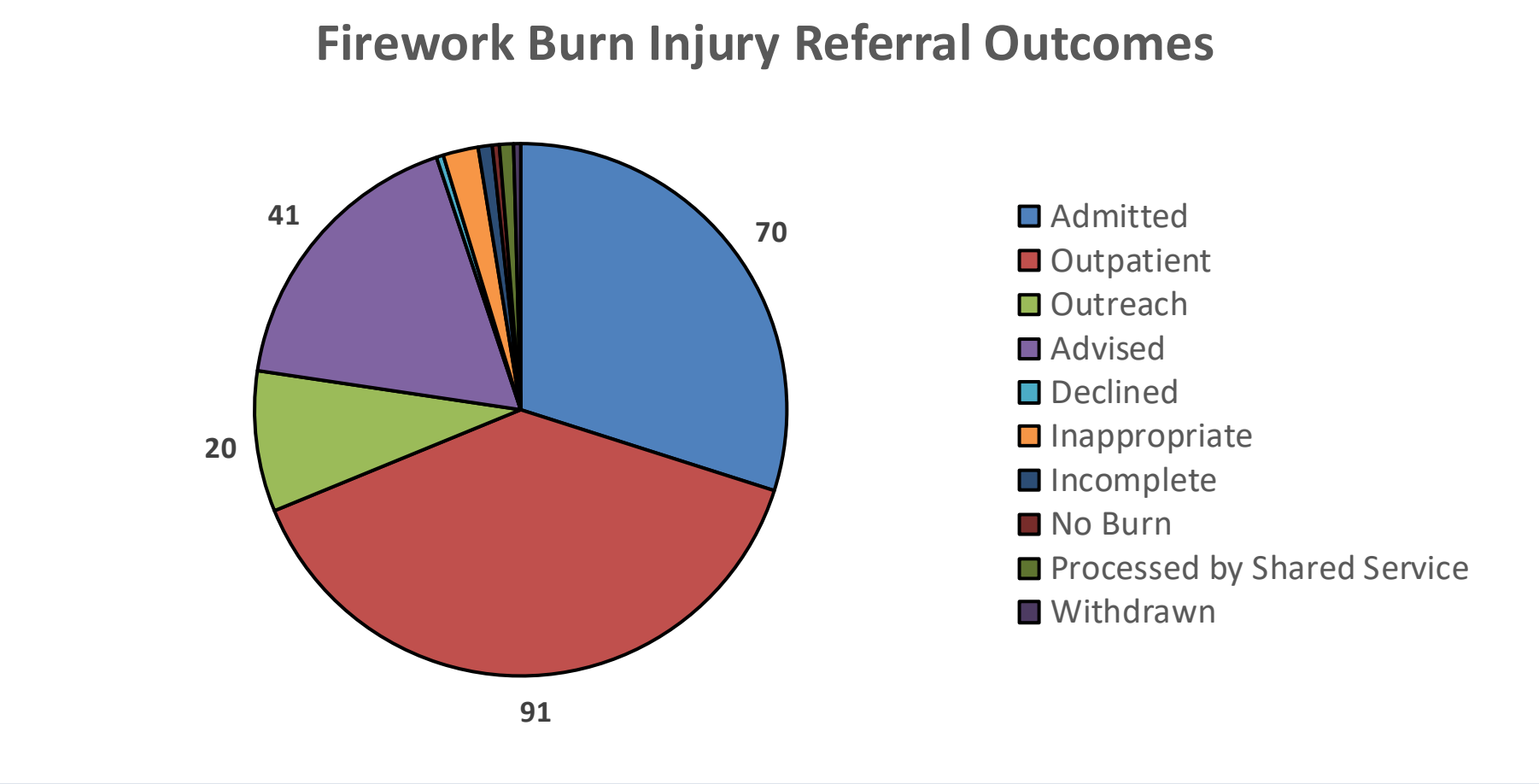


Injury Type, Site & TBSA

- Predominantly **flame** (118/234, 50.4%), **flash** (46/234; 19.7%) and **contact** (46/234; 19.7%)
- Small TBSA affected** (3.5% Mean, 1.0% Median, IQR 1-2.9%)
- Most cases affect **hand** (147/234; 62.8%), followed by **head and neck** (87/234; 37.2%) and torso (33/234; 14.1%)

Outcomes

- Of 222 referrals with recorded outcome:**
  - 181 (81.5%) required contact with the burns service**
    - 70 admissions** (31.5%)
    - 111 outpatient (91) or outreach (20) reviews** (50%)
  - 41 advice given (18.5%),
  - 12 inappropriate/incomplete/withdrawn (5.1%)



DISCUSSION & CONCLUSION

Firework injuries in our cohort demonstrate a striking temporal concentration, with 61.5% of referrals occurring in November and 26.9% on the 5<sup>th</sup> alone — a pattern almost entirely attributable to Bonfire Night and the surrounding celebrations and similar to previously published reports<sup>3</sup>.

Our demographic data confirms previously described male predominance (78.6%, ratio 3.68:1) however unearthed a concerning large paediatric cohort (87/234; 37.2%). Notably, girls under 16 account for 68% of all female patients, suggesting females are primarily at risk as child bystanders rather than active firework users.

Although causing relatively small TBSA injuries, the majority (81.5%) require review by the burns service due to their tendency towards affecting key sites including the hands and head/neck (62.8% and 37.2% of cases respectively).

Firework-related burn injuries are unique in their concentrated, predictable seasonal burden on burn services. Legislative changes and increased public perception of the dangers of these articles perhaps partially explain the general decline over the study period however these largely preventable injuries persist.

Prevention strategies should continue to be developed to target unsupervised private firework use, with particular focus on child safety and the high-risk period of 4–6 November.

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