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Fireworks are an underestimated danger to public health

Stronger regulations and public education campaigns could help avoid life changing injuries, write Indu Subramanian and colleagues

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In 2025, 13 000 people were injured by fireworks.[1] Some countries have taken a firm stance: the Netherlands has banned consumer use of fireworks, joining Ireland, Chile, and Australia.[2] But in many countries, where consumer bans are not in place (including India, the UK, and the US), there remains a critical need for education and regulation of fireworks.

Burns and hand surgeons, ophthalmologists, and emergency doctors brace themselves during holiday festivities every year for an influx of devastating, yet entirely preventable injuries. Fireworks related injuries are a leading cause of vision and limb loss globally, largely affecting young boys from low socioeconomic backgrounds.[3]

Burns and blast injuries caused by shockwaves during detonation are common, with enough pressure to rupture an eardrum.[4] Proximity to the blast increases the risk of traumatic injuries to the brain and eyes and other sequelae that might be missed initially but can have delayed downstream consequences, especially for the developing brains of young people.[5 6]

A study of a Los Angeles area trauma centre found that firework injuries had increased by 142% from an incidence of 0.19 cases per 100 000 in 2015 to a peak of 0.66 cases per 100 000 in 2021.[7] Most injuries were in young men aged 15-34 years. Common injuries included burns, eye injuries, and finger injuries requiring amputations. Overall, 79% of injuries in this group required surgical intervention.[7] In the UK, almost 4500 people in England attended emergency departments with firework injuries in 2017, double the number in 2009-10.[8]

In the US, the sale of consumer fireworks totalled $2.3bn (£1.7bn; €2bn) in 2025, more than double the $1bn worth of fireworks sold in 2019.[9] The covid-19 pandemic intensified direct to consumer firework sales and use for private shows because public displays were banned. The American Pyrotechnics Association and Congressional Fireworks Caucus lobby for #SaveAmericasFireworks say that "fireworks are entertainment enjoyed all year round."[10 11] Fireworks are marketed for celebrations year round including weddings, gender reveal parties, and birthday parties.[11] Simultaneously, there has been a surge of viral social media posts with high risk behaviours related to fireworks.

Firework regulations vary between states and countries. Policies have become less restrictive over time in some places. In 1984, 14 US states enforced total class C bans on fireworks including sparklers, fountains, Roman candles, rockets, and smoke devices but by 2026, only Massachusetts retains this ban.[4] Firework injuries are more common in states with fewer restrictions.[3]

Fireworks have other negative effects that disproportionately affect already marginalised communities. In 2023, 32 000 fires were started by fireworks in the US.[12] Fireworks also cause substantial air and noise pollution.[12] Most manufacturing is outsourced to low and middle income countries. The production of fireworks is dangerous and toxic and puts workers at risk of heavy metal poisoning, skin burns, inhalation injuries, and death.[13-15]

At the paediatric emergency department where one of us (TH) works, we frequently care for children with substantial firework injuries, especially around public holidays such as Independence Day. I fear this is just the tip of the iceberg of the injuries that are occurring nationwide and across specialties. No publicly available data are being collected systematically across the country, this needs to change so we can measure the scale and impact of firework related injuries.

One of us (RB) practices as a paediatric ophthalmologist in the US and India, and has seen entirely preventable loss of vision in children related to fireworks that can devastate families. Even with the best available care, lifelong visual disability often persists, which makes prevention our most powerful strategy to reduce harm. During Diwali in India, nearly 20% of ocular trauma is attributable to fireworks.[16] Most injuries occur at home or on the street, with 60% affecting bystanders.[16] Firework related eye injuries result in complete blindness in 15% of patients, disproportionately affecting young boys in rural communities.[16]

I (IS) watched the live feed on the doorbell camera of my colleagues' home in Santa Ana, California. We watched in horror as the tiny silhouettes of neighbourhood children were lit up by the continuous detonation of fireworks. Although "only safe and sane fireworks" are legally allowed in Orange County, California,[17] specifically only non-explosive ground based items, it was painfully evident that these rules are not being enforced.

We call for stronger regulations and sustained public education campaigns in the US and internationally. Global action is needed to increase data collection, regulation, and public safety of fireworks usage and injuries. Medical organisations and public health bodies need stronger messaging and should encourage people to attend public displays rather than using fireworks at home to counteract social media messaging. Harm reduction campaigns for

children in primary and secondary schools, which use the stories and images of people whose lives have been affected, are critical to warn of the real life consequences of mishandling fireworks. Warning labels with graphic images of injuries on firework packaging, similar to those on cigarette packaging, might be impactful.[8] As the Colorado fire department's campaign says: "Nobody thinks it will happen to them, until it does."[18]

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1 US Consumer Product Safety Commission. Fireworks Injuries & Deaths. https://www.cpsc.gov/Safety-Education/Safety-Education-Centers/Fireworks

2 Hedgehog. The Dutch fireworks ban: what are the environmental benefits? https://www.hhc.earth/knowledge-base/articles/the-dutch-fireworks-ban-what-are-the-environmental-benefits

3 Tranchitella N, Wilson E, Geiger T, etal. How state firework restrictions affect the incidence of paediatric firework injuries in the USA. *Inj Prev* 2025;31:-400. pmid: 39002975. doi: 10.1136/ip-2023-045152

4 Muldiiarov V, Aylward P, Buesing K, etal. Fireworks and injury in the United States: A review of epidemiology, clinical burden, and policy implications. *Am Surg* 2026;92:-8. pmid: 41166595. doi: 10.1177/00031348251393929

5 Bitter CC, Zhang Z, Talbert AW, Weber AK, Hinyard L. Firework injuries are increasing in the United States: An analysis of the National Emergency Department Sample, JACEP Open 2021;2:e12600. doi: 10.1002/emp2.12600

6 US Consumer Product Safety Commission. 2023 Fireworks Annual Report. https://www.cpsc.gov/s3fs-public/2023-Fireworks-Annual-Report.pdf

7 Sozzi A, Siletz A, Nekooei N, etal. Epidemiology and clinical characteristics of fireworks-related injuries in Los Angeles County trauma centers. *Eur J Trauma Emerg Surg* 2026;52:. pmid: 41697352. doi: 10.1007/s00068-026-03090-y

8 Ives L. Firework packaging should show graphic injuries, doctors say. BBC News 2018 Nov 5. https://www.bbc.co.uk/news/health-46071940

9 American Pyrotechnics Association. U.S. Fireworks Industry Revenue Figures Breakdown by Industry Segment 2000 - 2025. https://www.americanpyro.com/assets/docs/FactsandFigures/2025/Fireworks%20Revenue%20by%20Industry%20Segment%202000-2025.pdf

10 American Pyrotechnics Association. Preserving and promoting an American tradition. https://www.americanpyro.com/

11 American Pyrotechnics Association. The Congressional Fireworks Caucus Is Here! https://pyro.memberclicks.net/congressional-fireworks-caucus

12 Lowman L. Fireworks, heat and drought put this July 4th at high risk for wildfires The Conversation 2026 Jun 29. https://theconversation.com/fireworks-heat-and-drought-put-this-july-4th-at-high-risk-for-wildfires-286138

13 Thiagarajan, K. 'Invisible suffering': Deadly risks in India's fireworks factories. Global Health Now 2025 Apr 14. https://globalhealthnow.org/2025-04/invisible-suffering-deadly-risks-indias-fireworks-factories

14 Padanna A. Thirteen killed in second India fireworks blast in three days. BBC News 2026 Apr 22. https://www.bbc.co.uk/news/articles/cwydzddp4j9o

15 Srivastava S. 14 dead in massive blaze at Russian fireworks factory. Times of India 2026 Sep 29. https://timesofindia.indiatimes.com/world/rest-of-world/14-dead-in-massive-blaze-at-russian-fireworks-factory/articleshow/134550018.cms

16 Parija S, Chakraborty K, Ravikumar SR. Firework related ocular injuries in Eastern India - A clinico-epidemiological analysis. *Indian J Ophthalmol* 2021;69:-44. pmid: 34826991. doi: 10.4103/ijo.IJO_753_21

17 Orange County Fire Authority. Before you light that fuse: What every OC resident should know about fireworks this year. https://ocfa.org/news/before-you-light-that-fuse/

18 Keith T. 'Nobody thinks it will happen to them': CSFD shares unsettling fireworks warning. KOAA News 2026 Jun 24. https://www.koaa.com/news/local-news/nobody-thinks-it-will-happen-to-them-csfd-shares-unsettling-fireworks-warning