

A complete picture of new year's eve fireworks injuries treated at Dutch emergency departments

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Background and aim

- Consumers ignite large quantities of fireworks in the Netherlands on New Year's Eve.
- Around 500 victims with injuries at ED's on December 31 and January 1 occur each year, since 2013.
- Aim: Gather insights in causes of injuries and types of fireworks that cause specific kinds of injuries.

Methods

- VeiligheidNL and the NOS (largest public news organization) asked all ED's to report the number of victims due to fireworks at December 31, 2017 and January 1, 2018.
- VeiligheidNL and the Netherlands Society of Emergency Physicians (NSEP) requested all ED's to collect additional data on:
 - age and gender
 - type of fireworks
 - type of injury and body part injured
 - own use or bystander
 - narrative on what happened
- These additional questions were also asked for victims treated by trauma surgeons, plastic surgeons and victims themselves who had been treated by emergency physicians and eye specialists.

Results

- In 2017-2018 all 87 Dutch ED's participated. The absolute number of victims with injuries by fireworks was 434.
- This means a strong decline since 2007/2008 (see figure 1).
- 408 unique records with additional information collected among specialists.
- Most injuries were caused by rockets (16%), flash banger/Spanish crackers/nitrates/shells/mortars (all illegal in the Netherlands, 13%), Cakeboxes (11%) and Bangers (11%).
- The causes of injuries per type of fireworks (for the most frequently occurring legal products) are presented in figure 2.

Conclusions

- High response was a consequence of:
 - perceived high importance of the topic.
 - short and simple questionnaire.
 - large network we built with all medical specialists.
- Injuries are mainly caused by behaviour (35%) as well as the product itself (30%) (see table 1).



Figure 1: Number of injuries from fireworks treated at Dutch ED's on December 31 and January 1

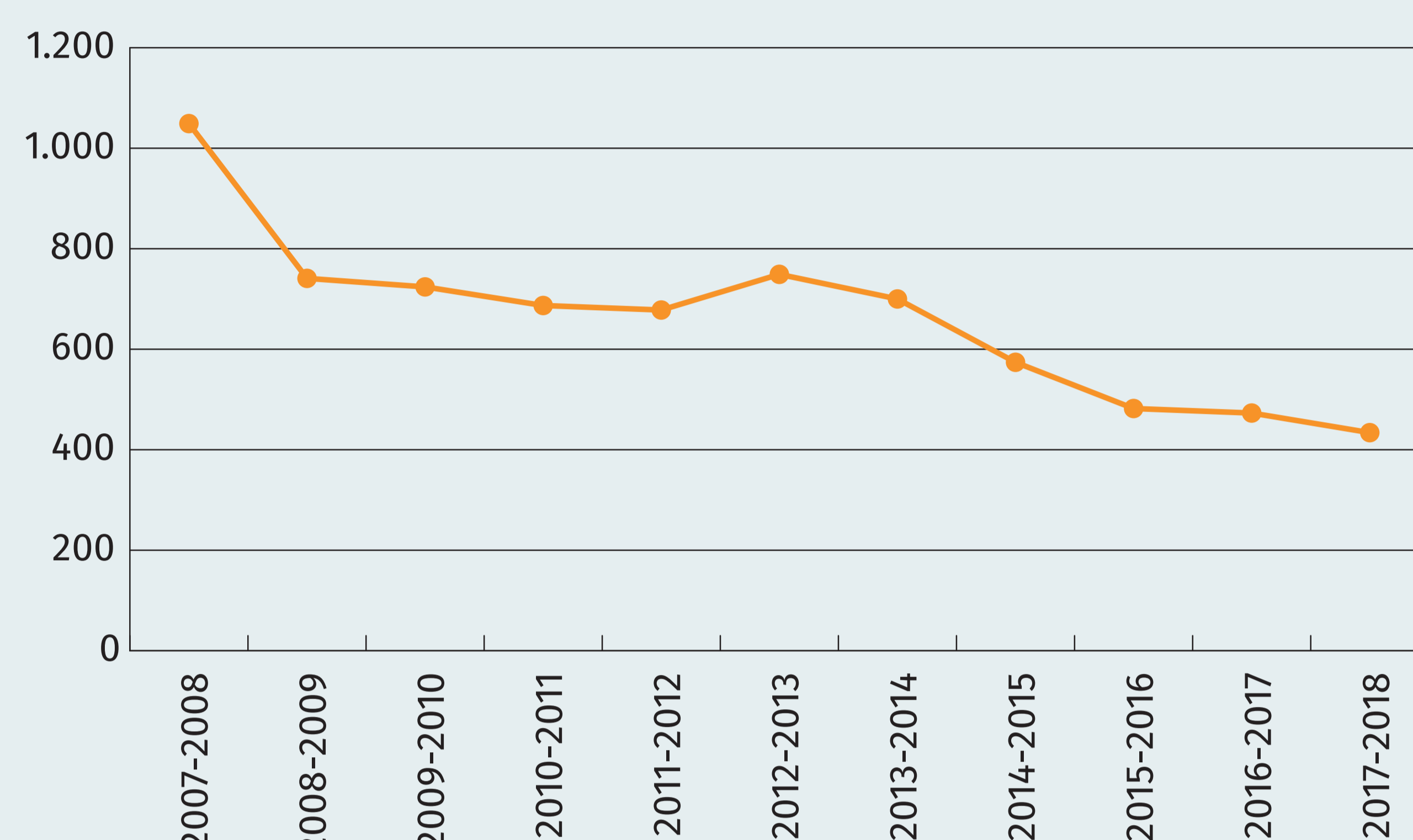


Figure 2: Causes of fireworks injuries per product: legal products

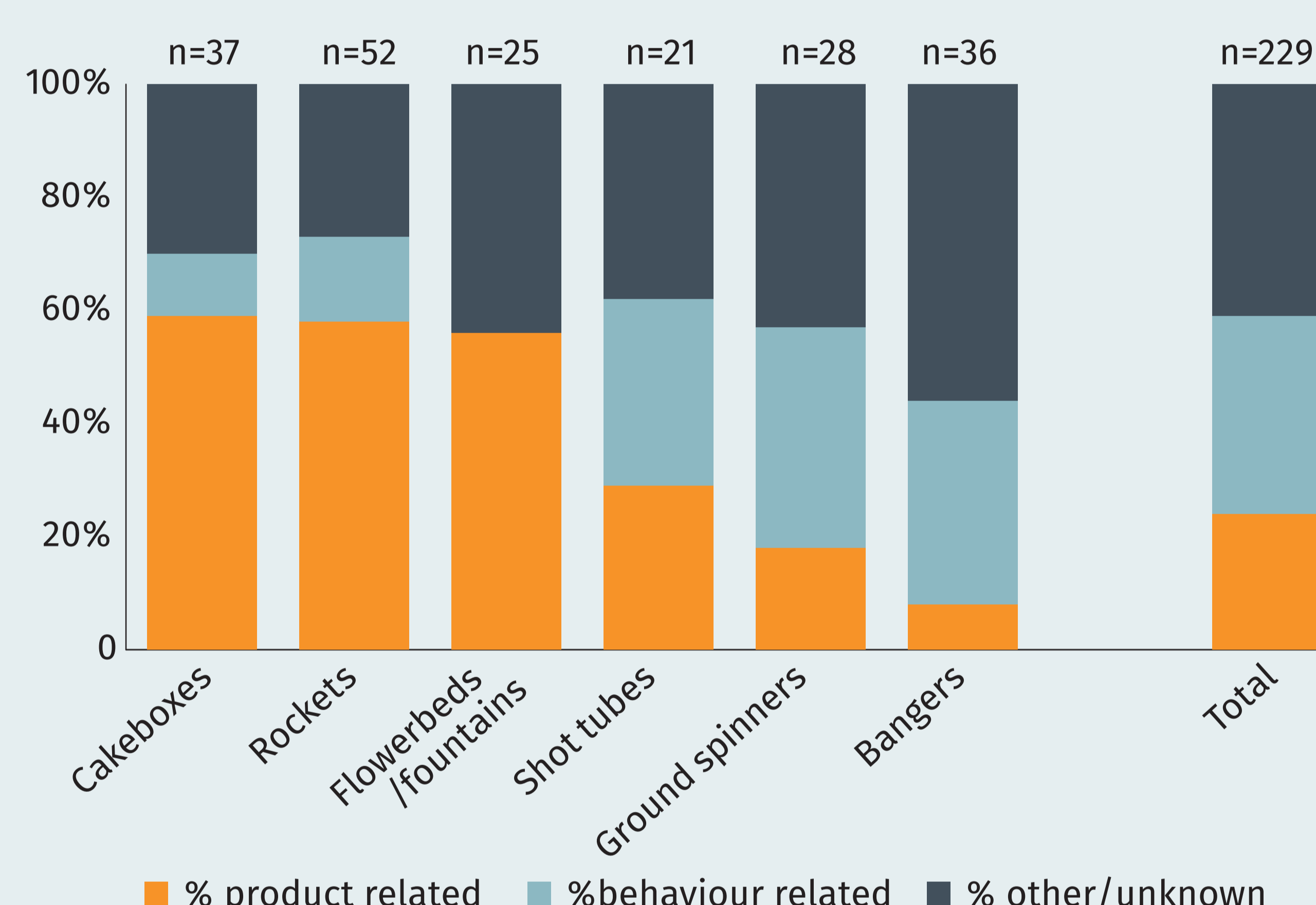


Table 1: Causes of fireworks injuries

| | n | % |
|--|------------|------------|
| Behaviour | 141 | 35% |
| Careless behaviour (illegal products included) | 108 | 26% |
| Held too long | 24 | 6% |
| Insufficient distance | 9 | 2% |
| Product related | 123 | 30% |
| Exploded too early | 53 | 13% |
| Rocket did not go up | 20 | 5% |
| Flash flame | 15 | 4% |
| Fireworks tipped over (unstable) | 13 | 3% |
| Faulty fireworks, other | 14 | 3% |
| Lit two or three fuses | 8 | 2% |
| Bad luck | 77 | 19% |
| Bad luck | 62 | 15% |
| Fireworks in clothes | 15 | 4% |
| Other/unknown | 67 | 16% |
| Total | 408 | 100% |

Political Implications

The ministry will develop policies and interventions that need to provide a further decline in fireworks injuries, based on these results.