



The Epidemiology of Upper Extremity Firework Related Injuries

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BACKGROUND

- Firework related injuries can range from burns and lacerations to amputations and mutilating injuries.
- These accidents can affect different body locations including upper extremities.
- Injuries can affect different age ranges and genders.

METHOD

- The Consumer Product Safety Commission's (CPSC's) National Electronic Injury Surveillance System (NEISS) was accessed for the years 2011 to 2020.
- Patients were identified using the product code 1313 (Fireworks) and selecting body parts consistent with upper extremity.
- Demographics, location, diagnosis, and disposition of each encounter were analyzed.



Figure 1. Example of Upper Extremity Firework Injury - *Mortar to Hand*

- National estimate of 46213 injuries with a count of 1243 injuries were identified.
- Injury estimates correlate with consumer consumption of fireworks ($R^2=0.6451$)
- Most frequently injured age group was 10-19 years of age (344, 28%).
- Males were 3.8 times more likely to suffer an injury compared to females.
- Hand (664, 53%) and fingers (397, 32%) were most commonly injured.
- Burns (784, 64%) were the most common diagnosis.
- The majority of patients were treated and discharged (943, 76%).
- Females were more likely to be treated and discharged (233, 90%) than males (709, 72%).

Figure 2. Injuries vs consumption

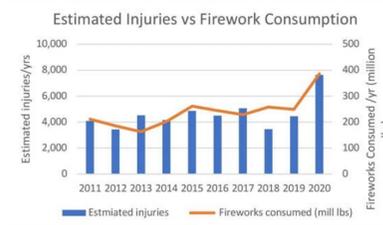


Figure 3. Firework Injuries by Age

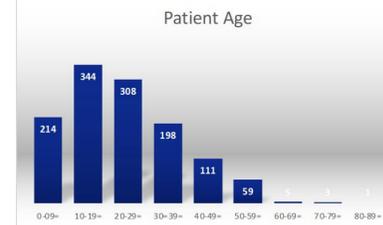
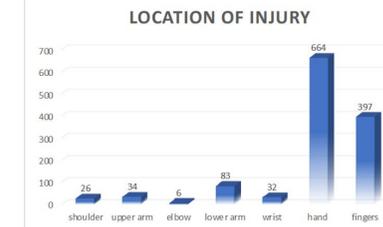


Figure 4. Firework Injuries by location



RESULTS

Figure 5. Firework Injury Disposition

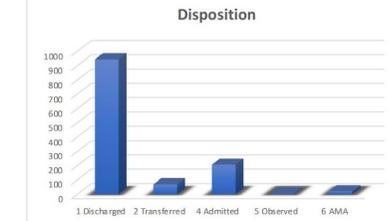


Figure 6. Type of Firework Injury



Figure 7 and 8. Example of Upper Extremity Firework Injury - *M-80 to Left Hand*

CONCLUSIONS

- Upper extremity firework related injuries appear to be increasing over the last few years, which is consistent with consumer firework consumption data
- Males 10-19 years of age appear to suffer the highest injuries with hand and finger burns being the most frequent diagnosis.
- Increasing public awareness and improving safety laws for minors could assist in reducing these injuries.

REFERENCES

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