Investigation of child dog bite injury in the domestic setting in Victoria, Australia

Erin Cassell, Karen Ashby & Emily Kerr

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Background

- Victoria (injury surveillance data): 1 death, 170 hospital admissions and 430 ED presentations for dog bite per year among children aged 0-14 years.

- Children 0-4 have highest hospital admissions rate (2-year-olds most at risk); 60% of bites to children are to head/face; 69% occur in the domestic setting.

- Previous research has identified a small number of proven and several potential risk factors related to the victim, dog and environment.
Aims of study

• Describe in detail the circumstances of the bite incident, the nature and longer term consequences of the injury to the child

• Investigate potential risk factors for domestic dog bites in young children related to the child, dog and the environment and their interaction at the time of the bite incident
Methods

• In-depth descriptive study (102 community controls just recruited for separate case control study)

• Eligible cases: children aged 0-9 bitten in the domestic setting presenting to any of 7 hospital EDs over 13-month period

• Structured telephone interview with parent/guardian of bitten child

• Instrument informed by those previously used by Gersham et al (1994) & Guy et al (2001) and literature review
Results

• 51 cases recruited; 67% participation rate

• Younger children (aged 0-3) over-represented by 14% in study sample compared with all dog bite ED presentations over study period, other demographics similar

• Domestic dog bites were as likely to occur in another person’s home (mostly family member’s) as own home
  – 33% bitten by their family pet in their own home
  – 14% bitten by a grandparent’s pet when living with grandparent
  – Other cases occurred when visiting another home

• Bites occurred most often in summer (37%), btw 4pm & 7pm (29%) & on weekdays (59%)
CHILD-related potential risk factors

– Young age 0-4 vs. 5-9 (2.2:1); male gender (1.4:1)

– ‘Overconfident’ with dogs (65%)

– Familiar with dog (80%) inc. one-third bitten by family pet

– Lack of, or inadequate, skills-based safety education and training at kindergarten, school or by parent
CHILD-related potential risk factors

- Lack of or lapse in supervision (40% unsupervised)

- Encroachment onto dog’s established territory (51%)

- Provocation of dog - teasing, biting, grabbing (57%, mostly involving male children)
DOG-related potential risk factors: demographics and health

- Dogs significantly more likely to be male (65%)
- Slightly more likely to be neutered (54%)
- 29% had existing health or medical condition, most commonly arthritis or other orthopaedic problem (KRF)
- More likely to be small (41%) than medium (31%) or large (28%)
- 43 different pure and mixed breeds (suggests breed not a risk factor)
So what does a biting dog look like?
But also like this...
DOG-related potential risk factors: living arrangements

- 90% lived in yards measuring 75m² or more i.e. adequate yard space
- Dog’s territory for sleeping and eating accessible to children (85% and 89% respectively)
- 44% slept on a person’s bed in first two months of life and 28% in the 6 months before bite (*KRF*)
- 37% spent equal time indoors and outdoors; 31% mostly indoors (*KRF*)
- 38% exercised once a week or less; mostly breeds that required daily exercise
DOG-related potential risk factors – temperament

• In either first two months of life or 6 months before bite (KRFs)
  - 35% described as anxious or nervous
  - 44% had history of aggression over food
  - 35-41% were given high excitability rating

• One third were ‘frequently snappy or bitey’ and 9% were ‘generally aggressive’ (KRF)

• 84% showed fear when exposed to at least one known fear invoking stimulants for dogs - thunder, vacuum cleaners, men, delivery people etc. Small dogs were more likely to be fearful.
DOG-related potential risk factors – training

- Lack of obedience training: 71% had no formal obedience training; 63% had no informal training
- 67% had no involvement in organised social interaction (e.g. puppy skills, off-the-leash play)
- 55% had limited-to-moderate social interaction skills with other dogs
Outcomes for children and dogs

• Injuries mostly open wounds to head and face
• Inverse association between age and facial bites
• 40% admitted to hospital, mostly same day admissions for plastic surgery or wound cleaning and suturing; 80% required follow-up treatment
• 60% suffered longer term complications: mostly scarring
• Half exhibited behaviour change – increased fear of dogs, sleep disturbance, role playing involving aggressive dogs
• 77% of biting dogs remained in their household after the biting incident, 16% were put down and 4% given away
Study limitations

• Selection bias
  – Small convenience sample (20% of Victorian child dog bite ED presentations over study period
  – 67% response rate: loss due to inability to contact (n=12), language barriers (n=4)
  – younger cases over-represented

• Poor response to dog owner interviews so dog information biased toward family pets

• No comparison group (under recruitment)
Future

- Case-control study currently underway

- Victorian Bureau of Animal Welfare will use results to revise/augment dog bite prevention strategies and measures targeting parents, children, dog owners and the community
Conclusions

- Contributed valuable additional information
- Findings support many of the established risk factors and some additional potential risk factors
- Potential risk factors require confirmation in an analytical study
- Current prevention initiatives need to be expanded to increase community awareness of contributory factors to dog bite
- Strengthen the commitment to preventive action among stakeholders