



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

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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*)

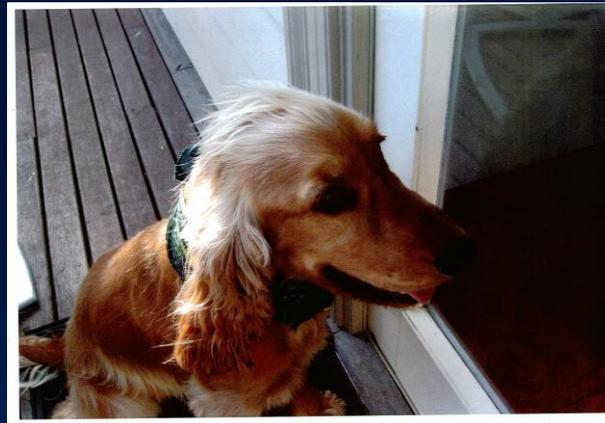


So what does a biting dog look like?





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**