



## Original article

# Incidence of dog bite in rural area (Chountra), District Rawalpindi, Province Punjab, Pakistan

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### Abstract

Pakistan is a developing country having huge burden of communicable disease, now having ever increasing number of non-communicable disease cases. This combine burden of communicable and non-communicable disease is over stretching already scarce health resources. The objective of this study was to access the incidence of dog bite in Chountra, District Rawalpindi, Province Punjab, Pakistan. This is descriptive study conducted on medical record of dog bite cases between 2011 and 2013. Total numbers of cases were 150. Most of the cases were registered during summer especially in the months of May to August. Most of the victims were male and found to be more common in children. The commonest site of the dog bite was lower limb. Vaccine availability was 60-70%. For cold chain management of vaccine, the backup generator was in working condition in 75-85% of the times but fuel availability was relatively low around 50-60%. To conclude, in rural setup of Pakistan dog bite cases are considerably high and impose significant burden on health service despite the fact that it is preventable.

**Key words:** Dog bite, Pakistan, Rabies

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In the emergency department it is not uncommon to see victims of dog bite<sup>1</sup>. Such cases are seen all over the world including developing and developed countries. However, developed countries have controlled dog bite cases but the developing countries like Pakistan still trying to control<sup>2,3</sup>.

Dog bites can lead to laceration of soft tissues, severe infections and disability. A microorganism (*Pasturella*) is commonly isolated from infected bite wounds. Other aerobes (*Staphylococcus*, *Streptococcus*) and anaerobes (*Fusobacterium* and

*Bacteriodes*) are commonly found in infected wounds<sup>4</sup>.

Rabies is a deadly zoonotic disease commonly associated with rabies-infected mammal bites. Rabies represents an economic burden for both developed and developing countries due to the costs of human post exposure treatment, diagnosis, surveillance, immunization of animals most importantly the number of humans suffering and deaths due to rabies<sup>5</sup>.

This study was planned to assess the incidence of dog bite cases among population of Chountra region of Rawalpindi district, Pakistan.

**Materials and methods**

*Study design:* This was a retrospective descriptive study.

*Study population:* Medical records from emergency department were screened and dog bite cases were selected for further analysis.

*Study site:* Rural Health Center (RHC) Chountra, District Rawalpindi, Pakistan.

*Sampling technique:* Convenient sampling

*Data collection:* A structured data recording form was used to record the desired information.

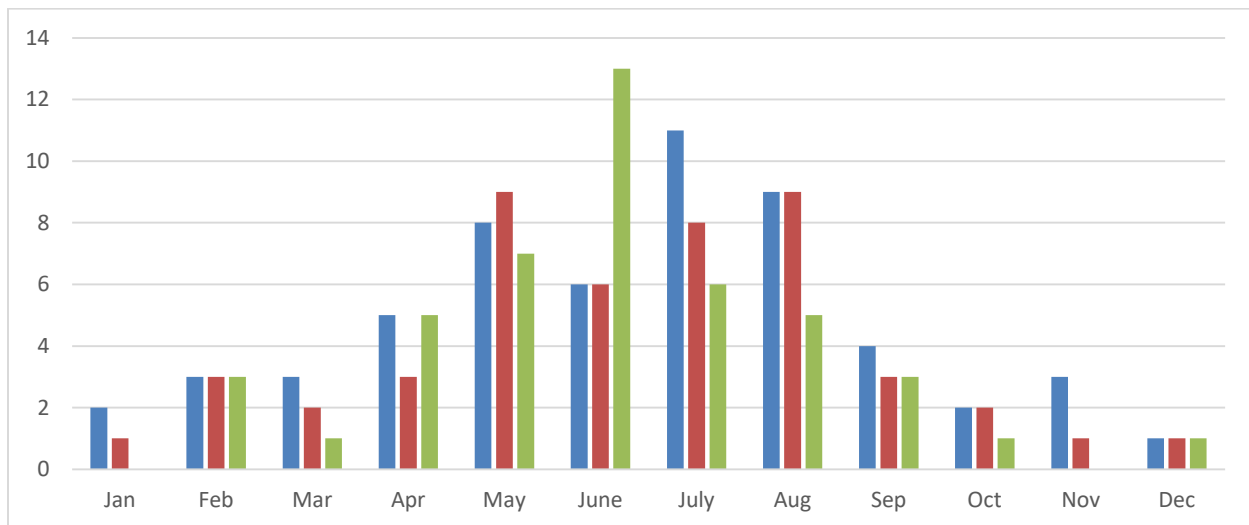
*Data analysis:* Analysis was done using MS Excel version 2007.

*Study period:* The time consumed in recording, analyzing and interpret data was two months.

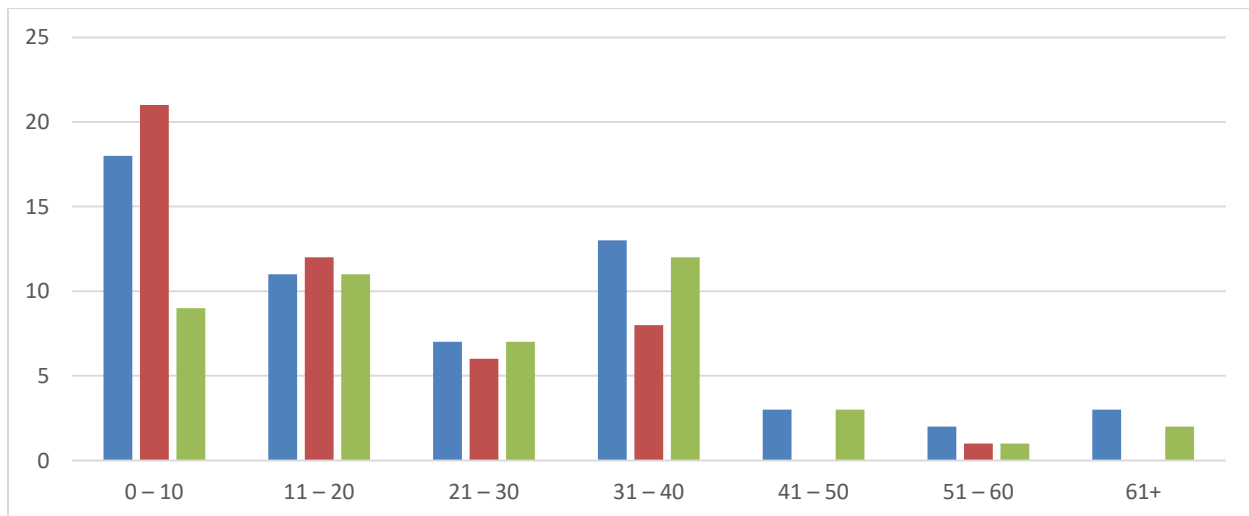
*Ethical consideration:* The Ethical Committee, Sarhad University, Peshawar, reviewed the synopsis and after its approval, study was carried out. Written permission for the study was obtained from In-charge of RHC Chountra.

**Results**

The total number of dog cases registered in the 2011 were 57 of which 19% of the dog bite cases were registered in July. In 2012, 48 cases were registered and mostly in May and August. Total number of cases registered were 45 in 2013. Similar seasonal trend was seen during this 3 year period, with higher number of cases in summer than in winter.



**Fig 1.** Dog Bite Cases (2011 - 2013) Seasonal variation. Blue: 2011, Red: 2012, Green: 2013



**Fig 2.** Age wise distribution of dog bite cases. Blue: 2011, Red: 2012, Green: 2013

**Table 1: Dog bite cases**

Gender	2011	2012	2013
Male	34	29	35
Female	23	19	10
Total	57	48	45

**Table 2: Dog bite cases**

Parameter	2011	2012	2013
<b>Site of bite</b>			
Head	5	2	1
Chest	9	7	3
Abdomen	16	15	11
Upper limb	23	21	33
Lower limb	47	55	52
<b>Availability of vaccine</b>			
Yes	71	81	64
No	29	19	36
<b>Availability of refrigerator</b>			
Yes	90	89	69
No	10	11	31
<b>Availability of generator fuel</b>			
Yes	63	43	41
No	37	57	59

In most of the cases vaccine was available. However there were also such cases in which vaccine was not available due to limited resources of the health centre. Site of dog bite was predominantly the lower limb. In most of cases, for maintenance of cold-chain refrigerator and backup generator fuel was available.

### Discussion

Rabies is a fatal viral infection that can infect all mammals, but stray dogs cause over 99% of all human deaths from rabies. Human rabies can be prevented through prompt administration of post-exposure prophylaxis (PEP) to victims of bites by rabid animals<sup>6</sup>, and infection can be eliminated at source through sustained mass vaccination of reservoir populations<sup>7</sup>. PEP costs, the second largest component of the economic burden, could be reduced in many areas through more judicious and cost-effective administration.

Dog bite cases were more in summer than in winter as reported in this study. Males were more vulnerable population than females. 2<sup>nd</sup> vulnerable population group were children as highest number of cases of dog bites were found children as indicated by this three year data. The vaccine availability was 60-70% over the three years record. These finding were similar to the results of the studies<sup>3,8</sup> conducted in rural and urban setting which

showed similar pattern. Dog bite incidence rate for males was higher than for females, half of the bites were in summer. Eighty percent of the bites were class II or III and leg bites were most common. The most common victims of dog bite were children. The findings of our study are similar with the Sri lankan study which showed the highest numbers of bites (48%) were in the ages of 6-12 years<sup>9</sup>.

An essential component of vaccination/immunization is cold-chain management so that vaccines are effective. Our study also documented the unique feature regarding availability of refrigerator in working condition and fuel to run the backup generator. The refrigerator was in working condition in 75-85% of the times and generator fuel availability was relatively low around 50-60%. This finding is not documented in any other research article.

### Recommendations

It is highly recommended to control the population of dogs in the areas where dog bite cases are common. It is also recommended to equip the health care centers with vaccines and their storage protocols to fight against the cases of dog bite, especially those health care centers where the reported cases are greater in numbers.

### Conclusion

To conclude, in rural setup of Pakistan dog bite cases are considerably high and impose significant burden on health service despite the fact that it is preventable. Also, it can be said that children are more at risk of being bitten by dogs than adults and younger children need particular attention because their injuries are more serious.

**Acknowledgments:** None

**Conflict of interest:** None

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