

## Animal Bite Patterns and Implementation of Rabies Prevention and Control Program in Animal Bite Treatment Center

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### ABSTRACT

Rabies is a perennial fatal disease and animal bite is the major culprit. Over the decade, animal bite cases have been increasing in the Philippines [1].

This is a retrospective descriptive comparative quantitative research design. It aims to describe the pattern of characteristics of animal bite cases as well as to determine if there is a significant difference in the implementation of Rabies Prevention and Control Program (RPCP) in government and private Animal Bite Treatment Centers (ABTC) in Quezon Province both from the standpoint of patients and healthcare providers. It utilized convenience sampling in selecting the 200 patients and 10 Healthcare Workers (HCW) respondents. Records review and survey questionnaire (Cronbach's alpha of 0.84) were used to draw the information.

Animal bite pattern in Quezon Province peaked during May, July and August having an ascending trend from 2016 to 2017. Female and age group above 15 years old are the most common victims of animal bites. Dogs are the most common culprits of animal bites, with the bites predominantly classified as category II. RPCP in government (WAM=4.87) and private (WAM=4.38) ABTC is often implemented as assessed by patients and HCW. Despite that RPCP is often implemented, findings revealed that its implementation is significantly different in government and private ABTC ( $p$ -value  $< .00001$  at a level 0.01) as assessed by both patients and HCW.

Despite the high extent of implementation of RPCP animal bite cases remains high and in ascending trend (26.35%). Identified areas needing improvement is deemed recommended to be corrected and monitored.

### Keywords

Animal Bite Center, Animal Bite Pattern, Animal Bite Treatment Center, Implementation, Rabies Prevention and Control Program.

### Introduction

Rabies is one of the neglected communicable diseases that is a perennial health concern in the Philippines. The country is one of the top 10 countries in the world with rabies problem. It is the most acutely fatal infectious disease responsible for deaths which

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ranges from 245 to 266 with an average of 258 cases per year from 2014-2017. Out of the 144 reported human rabies cases in the Philippines, 6 (4.2%) came from Quezon Province [1].

As such, Philippines indicated its commitment to rabies control measures by passing the Anti-Rabies Act of 2007 (Republic Act No. 9482). Specifically, Section 2 of the said republic act declared that it is the policy of the state to protect and promote the right to health of the people. Thus, a system for the control, prevention of the spread and eventual eradication of human and animal rabies through the development of a National Rabies Prevention and Control Program (NRPCP) was established. Animal Bite Treatment Centers and Animal Bite Centers (ABC) were established to facilitate the implementation of the said program. The government facilitates ABTC network operations while ABC which are operated and owned by private individuals or companies/corporations. The number of ABTCs governed by the Philippine government has been steadily rising since 1997 to a total of 513 by July 2017, and consequently the number of bitten patients treated has risen. However, records of the numbers of bitten patients treated in many private Animal Bite Clinic facilities in the Philippines are not compiled and consequently were not available for analysis [2].

Animal bite is the major mode of transmission for rabies. According to Dr. Nicole Perreras, medical specialist 3, Head of Animal Bite Clinic at the Research Institute for Tropical Medicine, the number of animal bite patients in the country has become more alarming over the years with 100-130 cases of animal bites patients a day, anywhere from scratch to a real dog or cat bite [3].

Similarly, the DOH Rabies Surveillance noted that the animal bite cases have been increasing for the past 10 years despite the effort of both private and government sectors to implement rabies prevention and control programs [1]. It is extremely important to reflect on how well these programs are being implemented to help in developing recommendations to strengthen the implementation process and achieve nation's goal of being rabies-free by 2020.

This study is designed to describe the pattern of characteristics of animal bite cases in Quezon Province. Its main thrust is to determine if there is significant difference in the implementation Rabies Prevention and Control Program in government and private Animal Bite Treatment Centers in Quezon Province both from the standpoint of patients and health care workers (HCW).

## Methods

The research study utilized a retrospective descriptive comparative quantitative research design as it used existing data from the private and government ABTC census of animal bite incidents and patterns from January 2016 to December 2017. The study aimed to describe the pattern or characteristics of animal bite cases and determine if there is a significant difference in the implementation of RPCP in government and private ABTC in Quezon Province both from the standpoint of patients and HCW.

This study was conducted in three (3) ABTC in Quezon Province within a period of one month from October 24 – November 23, 2018. It utilized convenience sampling also known as availability sampling, a specific type of non-probability sampling method that relies on data collection from population members who are conveniently available to participate in study. The study was conducted among 200 respondents, with 100 patients from government ABTC and 100 patients from private ABTC. The study also obtained the assessment of the healthcare providers having a total of ten (10) respondents, six (6) healthcare providers from government ABTC and four (4) healthcare providers from private ABTC.

Data on the pattern or characteristics of animal bite were obtained from review of records in the ABTC from January 2016 to December 2017. The extent implementation of the program was assessed using a 21-item research questionnaire which was adopted from the DOH / CHD Self-Assessment Tool Manual of Operations (2012) on National Rabies Prevention and Control Program. It was modified and translated into a Filipino vernacular for the convenience and better understanding of the respondents. The tool utilized five-point Likert scale as follows: (5) always implemented, (4) often implemented, (3) sometimes implemented, (2) seldom implemented, and (1) not implemented.

Pilot testing was administered to ten (10) patients of ABTC in Bulacan Province. The results were statistically computed using the Cronbach's Alpha SPSS statistics which yielded a good reliability (0.841). The questionnaire was modified for precise, explicit and completeness prior to its distribution. Informed consent was secured from the respondents. The purpose of the study was properly explained to each respondent with assurance that all responses will be treated with confidentiality. After the retrieval of the questionnaires, data were gathered, organized, interpreted, and analysed using SPSS.

## Results

Animal bite pattern in Quezon Province which usually peaked during May (10.53%), July (10.38%) and August (10.18%) having an ascending trend (26.35%) from 2016 to 2017. Moreover, female (51.54%) and age group above 15 years old (61.41%) are the most common victims of animal bite. Dogs (62.41%) are the most the most prevalent culprits of animal bites which are predominantly classified as category II bites (71.79%). RPCP in government (WAM=4.87) and private (WAM=4.38) ABTC is often implemented as assessed by patients and HCW. Despite that RPCP is often implemented, findings revealed that its implementation is significantly different in government and private ABTC (p-value <.00001 at  $\alpha$  level 0.01) as assessed by both patients and HCW.

## Discussion

Findings revealed that animal bite pattern in Quezon Province peaked during May (10.53%), July (10.38%) and August (10.18%) having an ascending trend (26.35%) from 2016 to 2017. According to Sarah Fraser, co-founder of Instinct Dog Training, summer is the season of dog bites and that dogs are being potentially put in more

social-gathering situations that make them very uncomfortable [4]. Moreover, dogs can be irritable in the heat and grumpy when another gets in their space for, they lack the normal sweat glands compared with humans and other species [5]. Consequently, if the animal finds itself in a stressful situation whether they are scared or startled, it may bite to defend itself or its territory. This explains why animal bite is increased during July and August which are rainy months and season of thunderstorms that makes dogs and cats more anxious or freak out, thus, they bite to protect themselves [6].

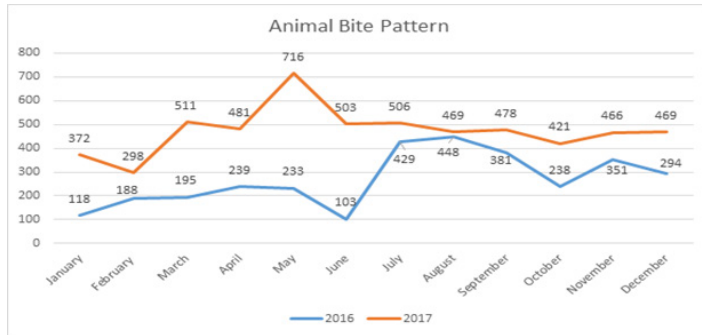


Figure 1: Monthly Distribution of Animal Bite Cases.

Furthermore, findings show that female (51.54%) are more likely to sustain animal bite [7] which refute the studies conducted in India, Iran and other countries claiming that males are the more likely to be afflicted by dog bite [8-11]. This can be attributed to the fact that dogs are domesticated and taken cared of mostly by women, since they are more likely the ones who stay at home.

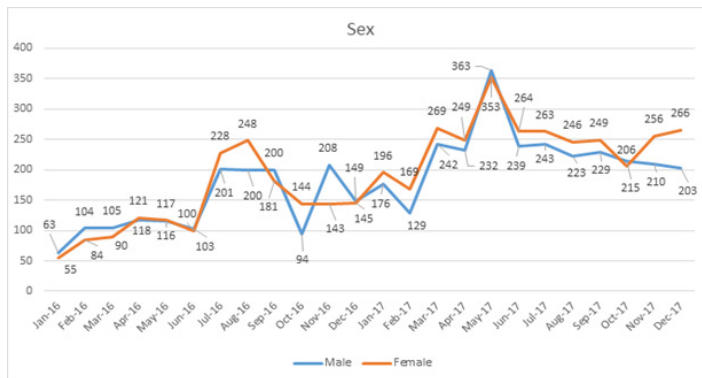


Figure 2: Distribution of Animal Bite Cases According to Sex.

Additionally, victims of animal bite cases in Quezon Province are more likely above 15 years old (61.41%) which negated other studies which tell otherwise [9,12-19]. Animal bites occur more frequently in adult since it is usually the adult member in the family who is often associated with handling and caring for the animal. Also, adults are more adventurous and risk takers making them more prone to bite of stray animals. These findings are congruent with the cases in Aklan, Davao and Cebu City, Philippines and India which clinched that nearly half of the cases occurred in persons of economically productive age group [8,20,21]. However, deaths due to human rabies contributes to almost one third are among children less than 15 years old, an almost half of rabies exposure are among schoolchildren in which cases are usually higher in summer where children spend more time playing outdoors [22].

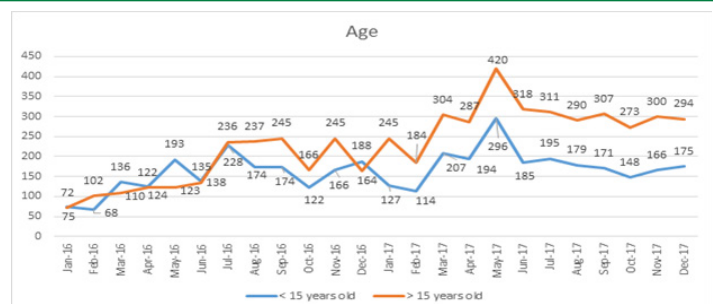


Figure 3: Distribution of Animal Bite Cases According to Age Group.

In terms of bite classification, the findings are congruent with the results of the studies that majority (71.79%) of the cases were category II which includes the following: nibbling of uncovered skin, minor scratches or abrasions without bleeding [8,11,23]. Likewise, Category II rabies exposure involves bites sustained from animals which are thought to have rabies such as dogs, cats, monkeys, swine, rabbits, cattle and goats, necessitating administration of anti-rabies vaccination and local treatment of wound [24].

Animal bite which includes single or multiple transdermal bites, such as puncture wounds, lacerations and avulsions, licks on broken skin or scratches/abrasions with spontaneous bleeding; contamination of mucous membrane with saliva from licks and contacts with bats [24], falls in Category III [22]. This need both anti-rabies vaccines and passive-immunization of e-rabies immunoglobulin (RIG) as well as local treatment of the wound. In this study, Category III (26.16%) falls only in second in rank while in India majority (97.1%) of animal bite victims falls in Category III.

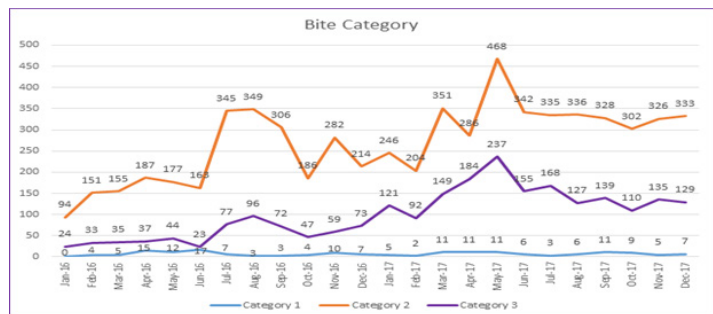


Figure 4: Distribution of Animal Bite Cases According to Bite Category.

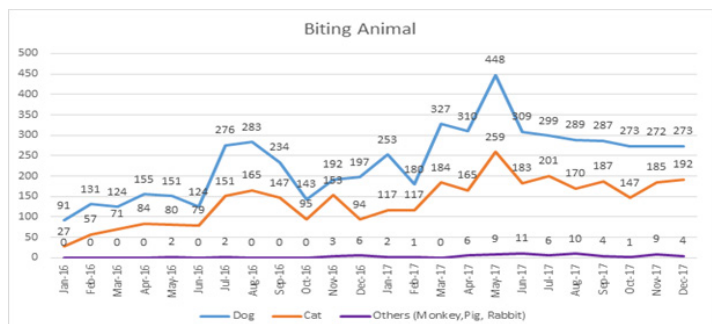


Figure 5: Distribution of Animal Bite Cases According to Biting Animal.

Lastly, Category I which includes touching or feeding animals, or licks on intact skin [24] had very minimal occurrence (1.94%), this is attributable to the idea that it does not need any post exposure prophylaxis so very few victims under this category seeks medical consultation.

Moreover, findings of this study affirm with most literatures that dogs (62.41%) were responsible for majority of bite cases [2,15,17,18,22,24,26,27], followed by cat bite (36.75%), and other animals (0.84%) such as monkeys, horses, pigs and rabbit.

Bites happen when playing with a pet or trying to feed animal or dealing with stray animals. This can be attributed to Filipinos being great lovers of dogs with over a million registered dog owners [28] as such the pet industry in the Philippines is growing and in fact according to Canine Club Inc., there were 1,169,659 registered with studbook in 2017, which is for pure-bred dog alone [3].

Dogs and cats in the Philippines are typically domesticated. However, when the number of pet dogs and cats increase the family can no longer afford to feed them, resulting to abandonment of the pets or will be thrown out into the streets. The typical stray animals are neither spayed nor neutered thus, eventually become populous. Despite strong animal rights crusading in the country with a verbose support from different sectors [29] problems of homeless animals remain to be high and contributing more with animal bite cases.

RPCP in government (WAM=4.87) and private (WAM=4.38) ABTC is often implemented as assessed by patients and HCW. Despite that RPCP is often implemented, findings revealed that its implementation is significantly different in government and private ABTC (p-value <.00001 at  $\alpha$  level 0.01) as assessed by both patients and HCW. This implies that government ABTCs are more compliant in terms of the implementation of RPCP than their private counterpart. Private ABTC in Quezon Province is commonly housed in a building which is not clearly visible and accessible. The treatment room is also quite small in size in which when more patients come in, the room becomes crowded with patients. Furthermore, signage bearing the name of the ABTC to assist patients accessing the centre is quite small, making it quite difficult to visualize and access. Also, the flow chart is not visible within the ABTC which can facilitate or expedite the provision of services to patients.

This new finding negates dogmatic theory of regulation that postulates that government firms are more likely to break protocols than similar private firms [30]. We support that government firms set the standard of compliance in the implementation of RPCP protocols while private firms reconciles resources through cost cutting measures for profit purposes otherwise they are more likely to pass these costs on to consumers.

## Conclusion

Despite of the findings that RPCP is often implemented both in government and private ABTC as assessed by patients and

HCW, animal bite cases in Quezon Province remains to be in increasing trends from 2016 to 2017. The study also concluded that government ABTC is significantly more compliant compared with private ABTC in the implementation of RPCP according to patients and HCW. Therefore, monitoring of implementation of RPCP in private ABTC must be given considerable attention. Further qualitative exploration on the reasons for the increasing incidence of animal bite is recommended.

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