

The Effect of the Breed Ban on Bite Incidences and the Usage of Post-Exposure Prophylaxis on Fort Riley

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MPH Field Experience

Objectives, Part 1

Breed-Specific Legislation and its Effect on Fort Riley

- Conduct literature review on BSL
- Collect data from Irwin Army Community Hospital's (IACH) medical record database on dog-bite related ER visits between January 2004 and December 2013
- Determine if the Banned Dog Breed Policy has been effective in reducing the incidence of dog bite-related ER visits on Fort Riley
- Analyze demographic characteristics of patients involved in dog bites

Objectives, Part 2

Rabies and the Usage of Post-Exposure Prophylaxis on Fort Riley

- Collect data from IACH's medical record database on the number of patients that initiated a rabies post-exposure prophylaxis (PEP) series between 2004 and 2013
- Determine the number of PEP series initiated per year
- Determine if the Banned Dog Breed Policy has had an impact on the amount of PEP used annually

Objectives, Part 3

Total Dog Bite Reports and Number of Reports Received

- Collect data from Public Health Command on the number of reports initially reported at any of the healthcare facilities and the number of those reports that were received by Veterinary Services by the next duty day
- Determine the average percentages of reports that were received at Veterinary Services by the next duty day after the initial dog bite report per year
- Determine the average percentage of reports received by the next duty day over the whole ten-year period between 2003 and 2012

Part 1

Breed-Specific Legislation and its Effect on Fort Riley

Breed-Specific Legislation (BSL)

Background

Background

Breed-Specific Legislation: “any bill that seeks to ban or place severe restrictions on owners of a particular breed of dog or dogs with certain physical characteristics, regardless of whether or not the dog is a problem in the community” (American Kennel Club, 2009).

Background

- Main dog breed registries do not recognize “Pit Bull” as a breed
- The term Pit Bull typically refers to the American Staffordshire Terrier (left) and the Staffordshire Bull Terrier (right)



Background

- Previous studies have been conducted in many countries on analyzing the effect of BSL
 - All but one of these studies have concluded that BSL has no effect on reducing the number of dog bite-related injuries

Background

Misidentification

Regardless of profession, one cannot identify the breed of an animal based on visual inspection alone

Study conducted by Voith et al. (2013)

- 986 participants; 20 dogs of various breed mixes
- For 14 of the 20 dogs, less than 50% of participants correctly identified the breeds that matched DNA analysis

Background

Banned Dog Breed Policy: Fort Riley Regulation 40-18, Pet Control and Disease Prevention (2008)

FR 40-18 States:

- Effective 1 October 2008, Pit Bulls, American/Staffordshire Terriers, and crosses of these breeds will no longer be allowed on Fort Riley. [...]
- This breed of dog has been bred for the purpose of aggression and may pose a danger to Soldiers, Families and visitors to Fort Riley. The Pit Bull, American/Staffordshire Terrier, or a cross of this breed has a genetic propensity which may lead to unprovoked aggression or attacks. [...]

Breed-Specific Legislation

Methods

Methods

- Conducted literature review and collected data on dog bite-related emergency room visits at Irwin Army Community Hospital (IACH)
 - Primary data from 2004 to 2013 obtained from Beverly Cronn in Health Information Management at IACH
 - Population statistics obtained from Residential Communities Initiative at the Housing Division on Fort Riley
 - Determined incidence rates of dog bite-related ER visits before and after the Banned Dog Breed Policy and the effect the policy may have had on these rates
 - Determined significant difference using alpha value from a chi-square test
- Analyzed the demographic characteristics of patients seen at the IACH ER for dog bite-related injuries

Methods

- Time period for this study was a two-year range before and a two-year range after the Banned Dog Breed Policy, with exactly one year of data before and after the implementation of the policy not used:
 - October 2005-September 2007
 - October 2009-September 2011
- Collected from IACH's medical records database
 - All encounters that included the diagnostic code ICD-9, E906.0, and V01.5, or any chief complaint containing the text "dog" within the selected time period.

Methods

- Variables studied:
 - Number of cases per year (October-September)
 - Age
 - Gender
 - Patient Category
 - Family Member Prefix

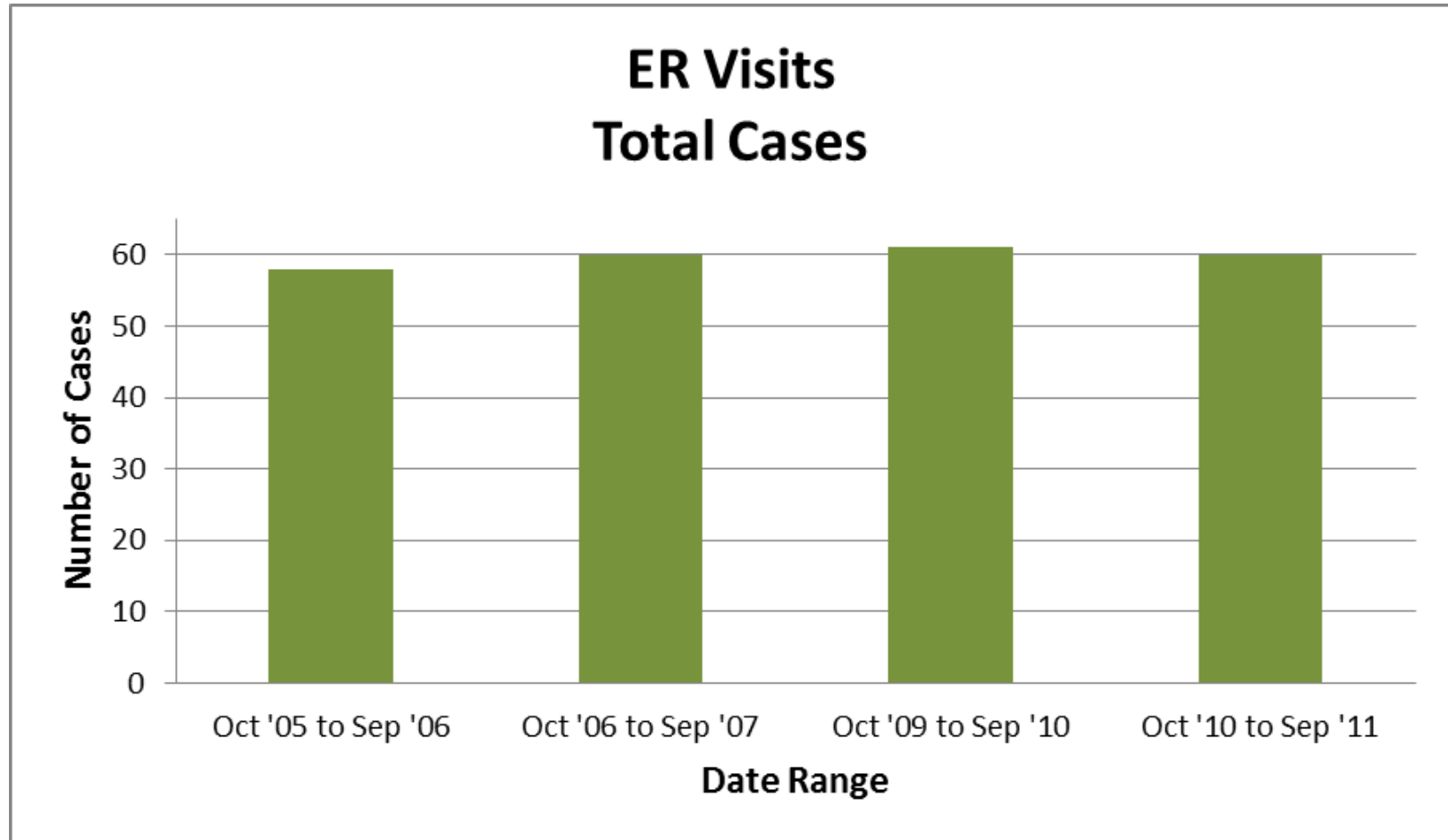
Breed-Specific Legislation

Results

Results

- Total number of cases in both date ranges
 - 239
- Number of cases before breed ban
 - 118
- Number of cases after breed ban
 - 121

Results

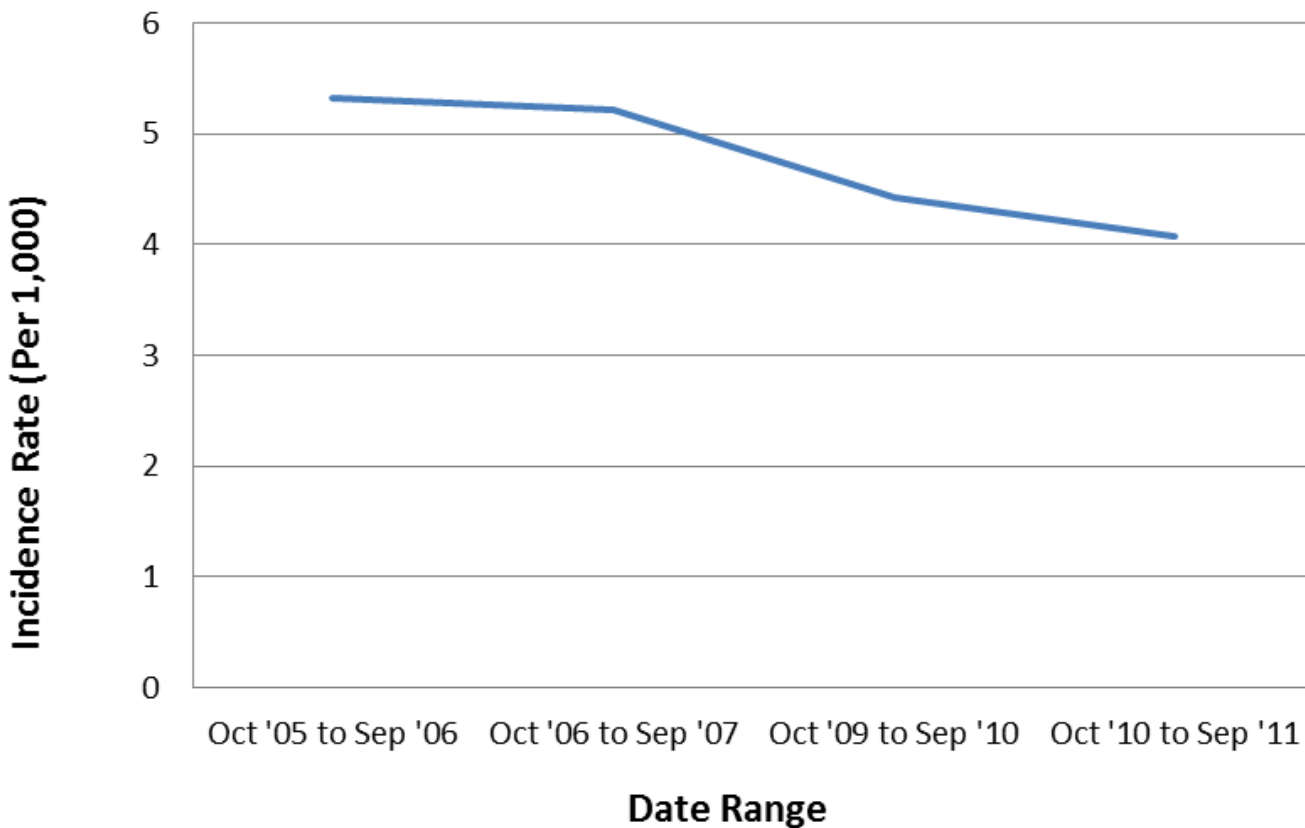


Results

- Incidence before breed ban
 - October 2005-September 2006
 - 5.32 per 1,000 persons
 - October 2006-September 2007
 - 5.21 per 1,000 persons
 - October 2009-September 2010
 - 4.43 per 1,000 persons
 - October 2010-September 2011
 - 4.08 per 1,000 persons

Results

Dog Bite-Related ER Visit Incidence Rate



Results

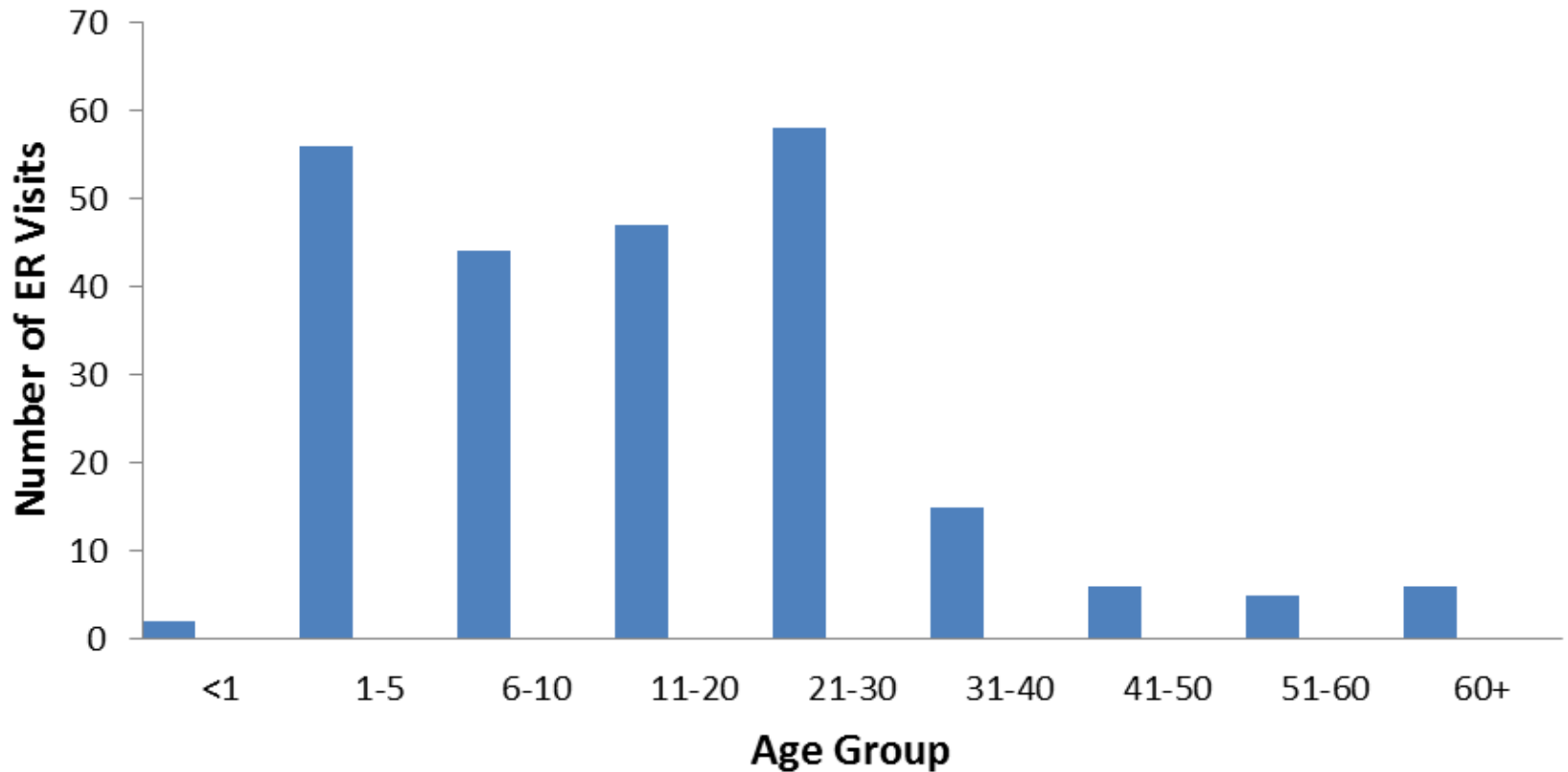
- More males (54%) sought medical attention for dog bite-related injuries in the ER than females (46%)
- Age groups (highest incidence)
 - Ages 1-5 (23.43% of all cases)
 - Ages 21-30 (24.27% of all cases)
- Patient Category (highest incidence)
 - A41 – US Army Family Member Active Duty (73.22%)
- Family Member Prefix
 - 1 – First-born child (28.45%)
 - 20 – Service Member (21.76%)

Results

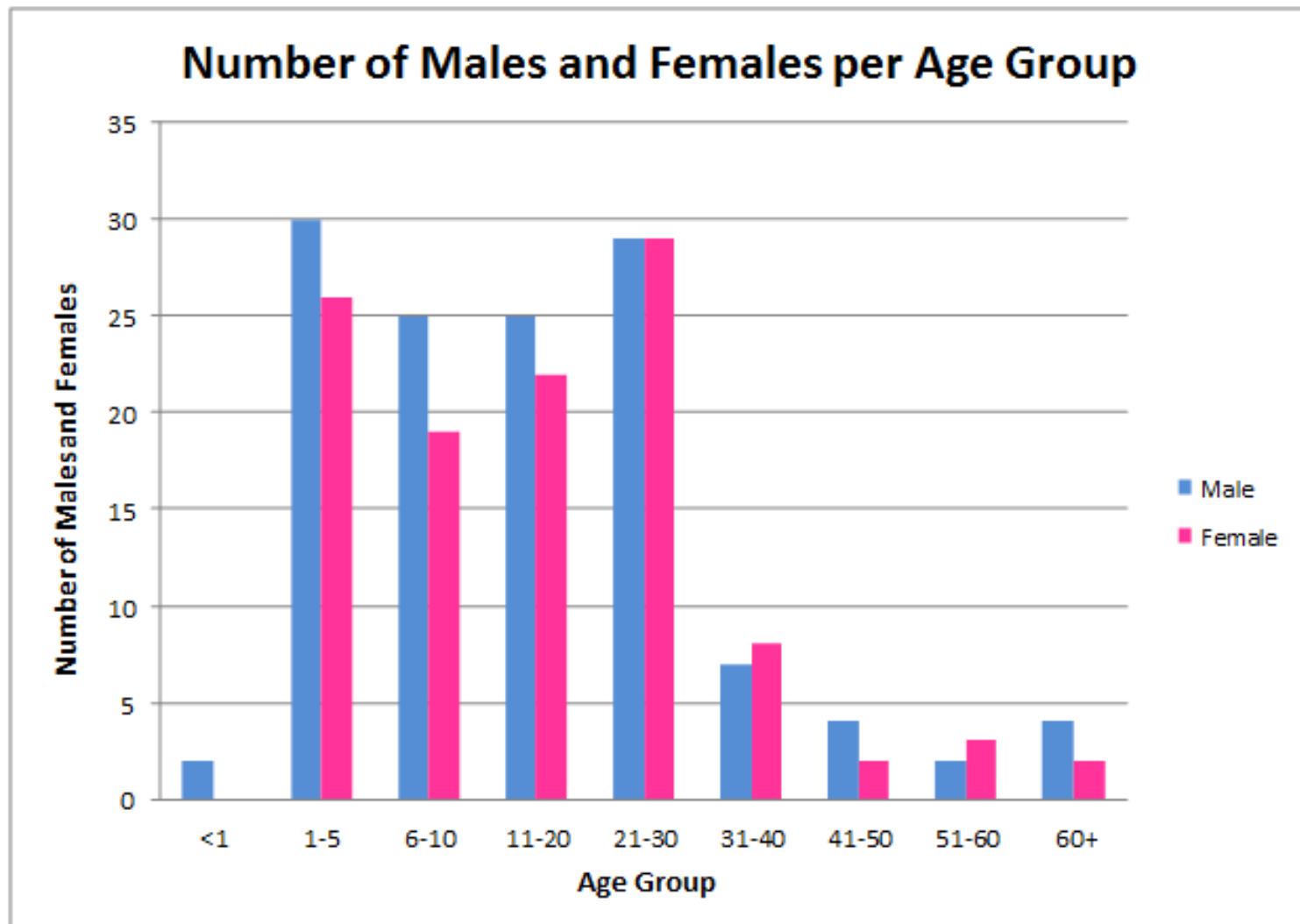
Demographic	Number	Percentage
Age Category (in Years)		
<1	2	0.84
1-5	56	23.43
6-10	44	18.41
11-20	47	19.67
21-30	58	24.27
31-40	15	6.28
41-50	6	2.51
51-60	5	2.09
61+	6	2.51
Sex		
Male	128	53.56
Female	111	46.44

Results

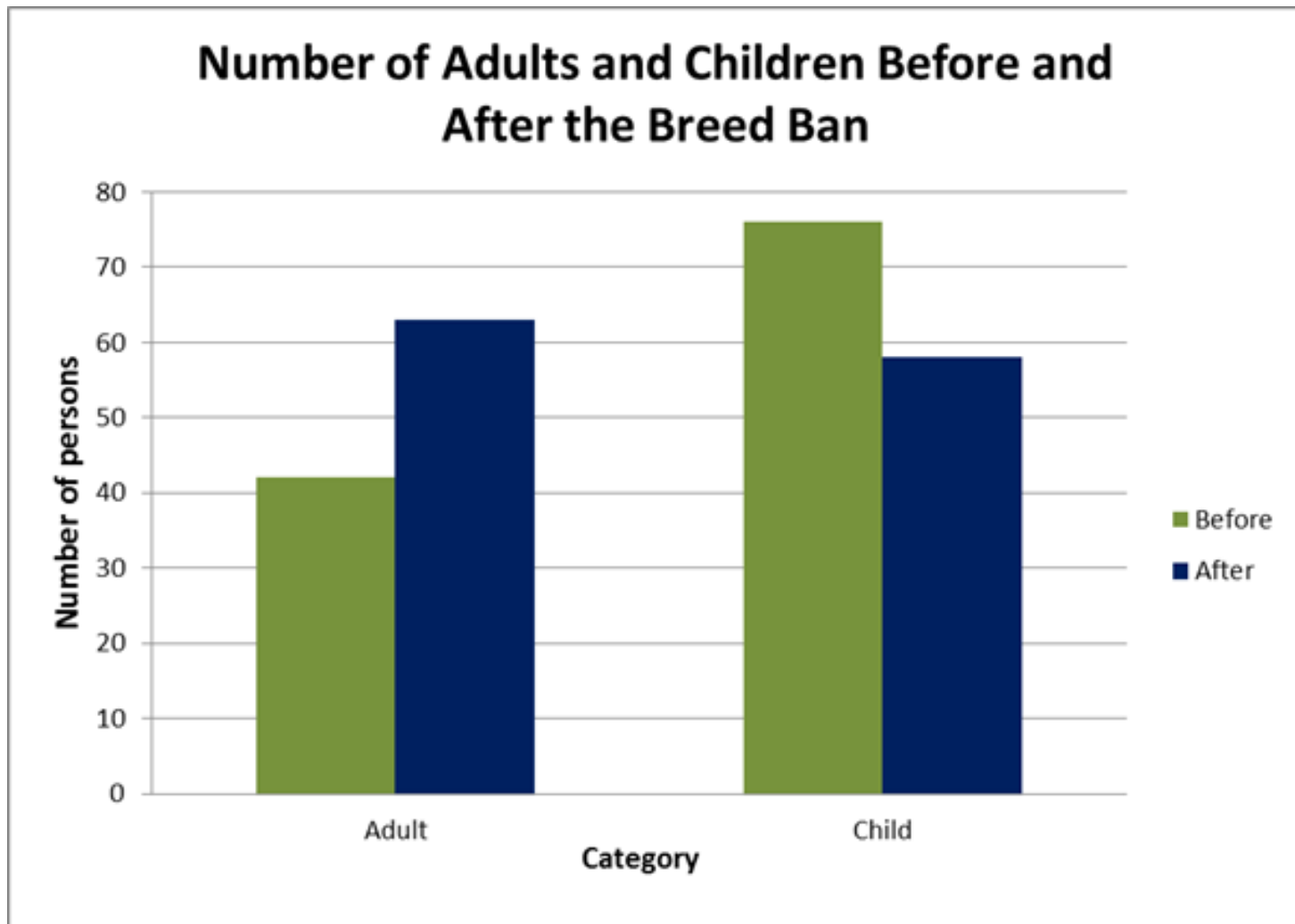
Age of Patients



Results



Results



Results

Demographic	Description	Number	Percentage
Patient Category			
A11	USA AD Enlisted or Officer*	41	17.15
A31	USA Retired LOS **	8	3.35
A32	USA Retired PDRL***	1	0.42
A41	USA Family Member AD	175	73.22
A43	USA Family Member Retired	8	3.35
A47	USA Family Member Deceased Retired	1	0.42
A48	USA Un-remarried Former Spouse	1	0.42
F41	USAF Family Member AD****	2	0.84
K93	Medicare-Civilian Emergency	1	0.42
K94	Medicaid-Civilian Emergency	1	0.42

*=USA refers to United States Army; AD refers to active duty.

**=LOS refers to Length of Service

***= PDRL refers to Permanent Disability Retired List

****= USAF refers to United States Air Force

Results

Family Member Prefix			
1	First-born child	68	28.45
2	Second-born child	40	16.74
3	Third-born child	23	9.62
4	Fourth-born child	8	3.35
5	Fifth-born child	2	0.84
7	Seventh-born child	2	0.84
20	Service Member	52	21.76
30	Spouse or Former Spouse of Service Member	38	15.90
31	Second subsequent spouse	4	1.67
98	Civilian Emergency	2	0.84

*=USA refers to United States Army; AD refers to active duty.

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Discussion

- The years leading up to the breed ban had 58 and 60 cases, and the years after the breed ban had 61 and 60 cases
- Population living on post was 10,893 and 11,524 before the breed ban and 13,776 and 14,689 after the breed ban
- Adults and children were affected differently by the breed ban
- Chi-square test shows $\alpha = 0.982$
 - If $\alpha > 0.05$, there is no association between the breed ban and the incidence of dog bite-related injuries seen at the ER

Discussion

- US Army Active Duty Service Members and their family members make up majority of patients seen at IACH ER (90.37%)
- More Active Duty than Retired live in Fort Riley area; thus, Active Duty will predominate
- ~60% of all patients were children of the service member
- ~38% of all patients were the service member or their spouse

Public Health Implications

- Greater awareness of demographics of those affected by dog bites on Fort Riley
- Targeting susceptible populations for education on how to behave around and properly approach dogs

Part 2

Rabies and the Usage of Post-Exposure Prophylaxis on Fort Riley

Rabies and PEP

Background

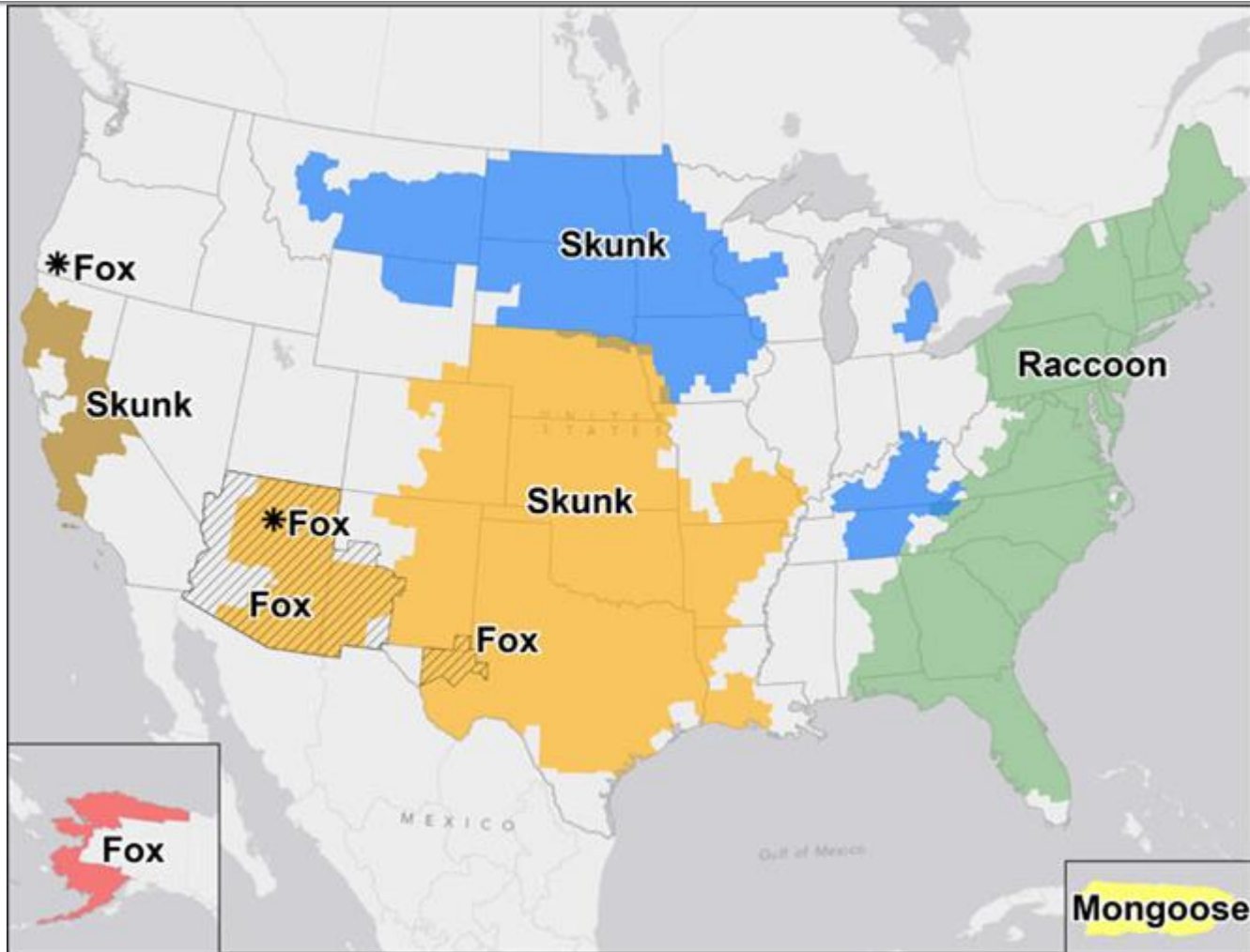
Background

- Rabies is one of the biggest public health concerns today
- Zoonotic disease
- Two forms:
 - Furious – hyperactivity, excited behavior, hydrophobia, occasionally aerophobia, eventual death by cardio-respiratory arrest (70%)
 - Paralytic – gradually become paralyzed, go into a coma, and eventually death (30%)

Background

- More than 55,000 people die from rabies every year
- About 40% of bite victims are children under the age of 15

Background



Terrestrial Rabies Reservoirs in the United States, 2012 (WHO)

Background

Prevention

PEP consists of:

- Local treatment of the wound, initiated as soon as possible after exposures;
- A course of potent and effective rabies vaccine that meets WHO recommendations; and
- The administration of rabies immunoglobulin, if indicated.

Rabies and PEP

Methods

Methods

- Collected data on post-exposure prophylaxis used at any of the clinics on Fort Riley
 - Primary data from 2004 to 2013 obtained from Health Information Management at IACH
 - Population statistics obtained from Residential Communities Initiative at the Housing Division on Fort Riley
 - Determined the number of PEP series that were initiated per calendar year
 - Compared the number of PEP series initiated to the population living on post
 - Determined the effect the Banned Dog Breed Policy may have had on the number of PEP series initiated

Methods

- Time period for this study was 01 January 2004 to 31 December 2013
- Original dataset listed every vaccination of PEP administered to patients at any of the clinics on Fort Riley
 - Since PEP is a series of vaccinations, only the first vaccination of a series administered to the same patient was taken into account.
 - Any vaccination listed that had a vaccination date of more than 30 days from the initial vaccination date was considered the beginning of another series.

Rabies and PEP

Results

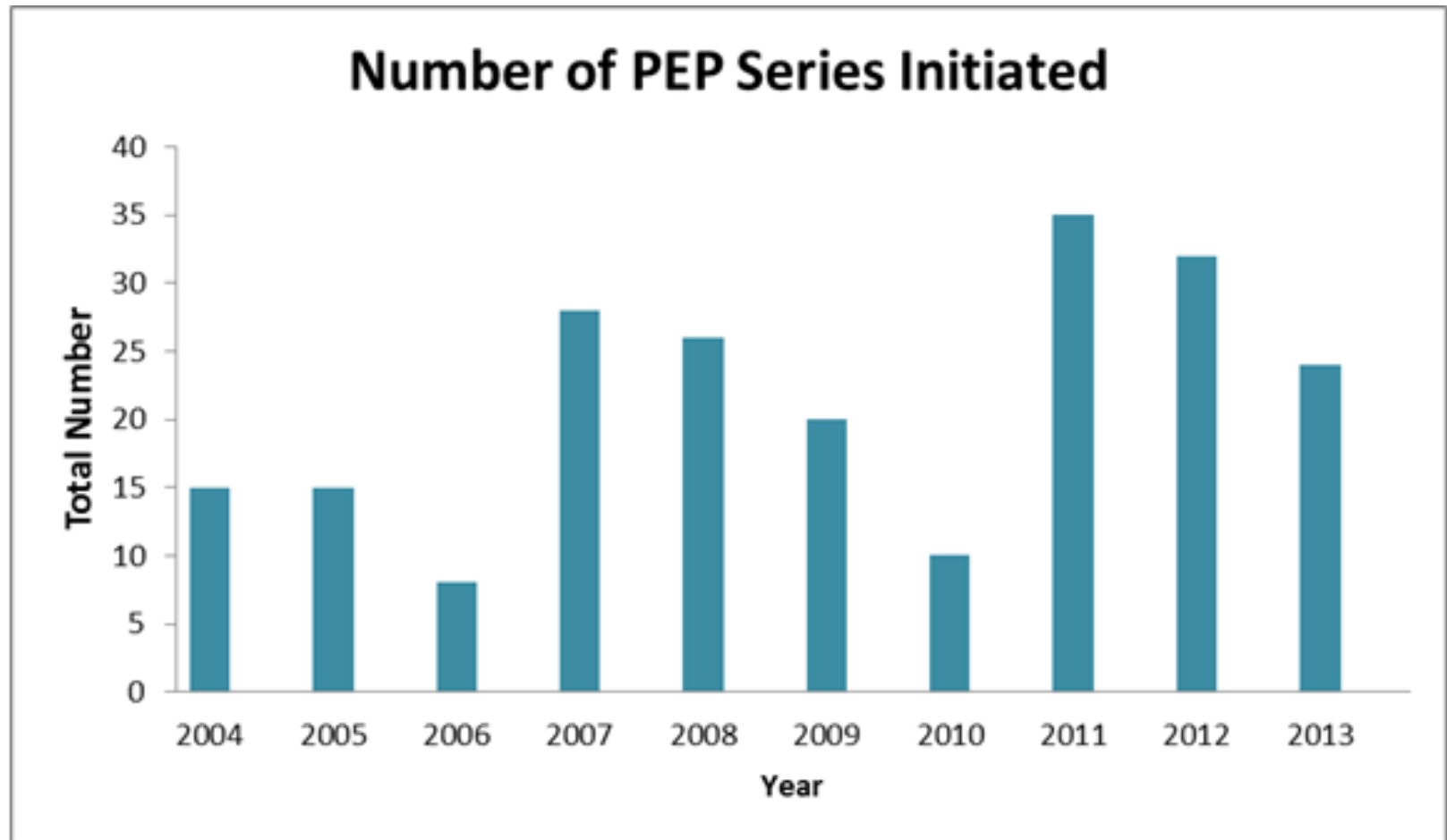
Results

- Total number of PEP series initiated
 - 213
- Largest number of cases in 2011
 - 35 cases
- Smallest number of cases in 2006
 - 8 cases

Results

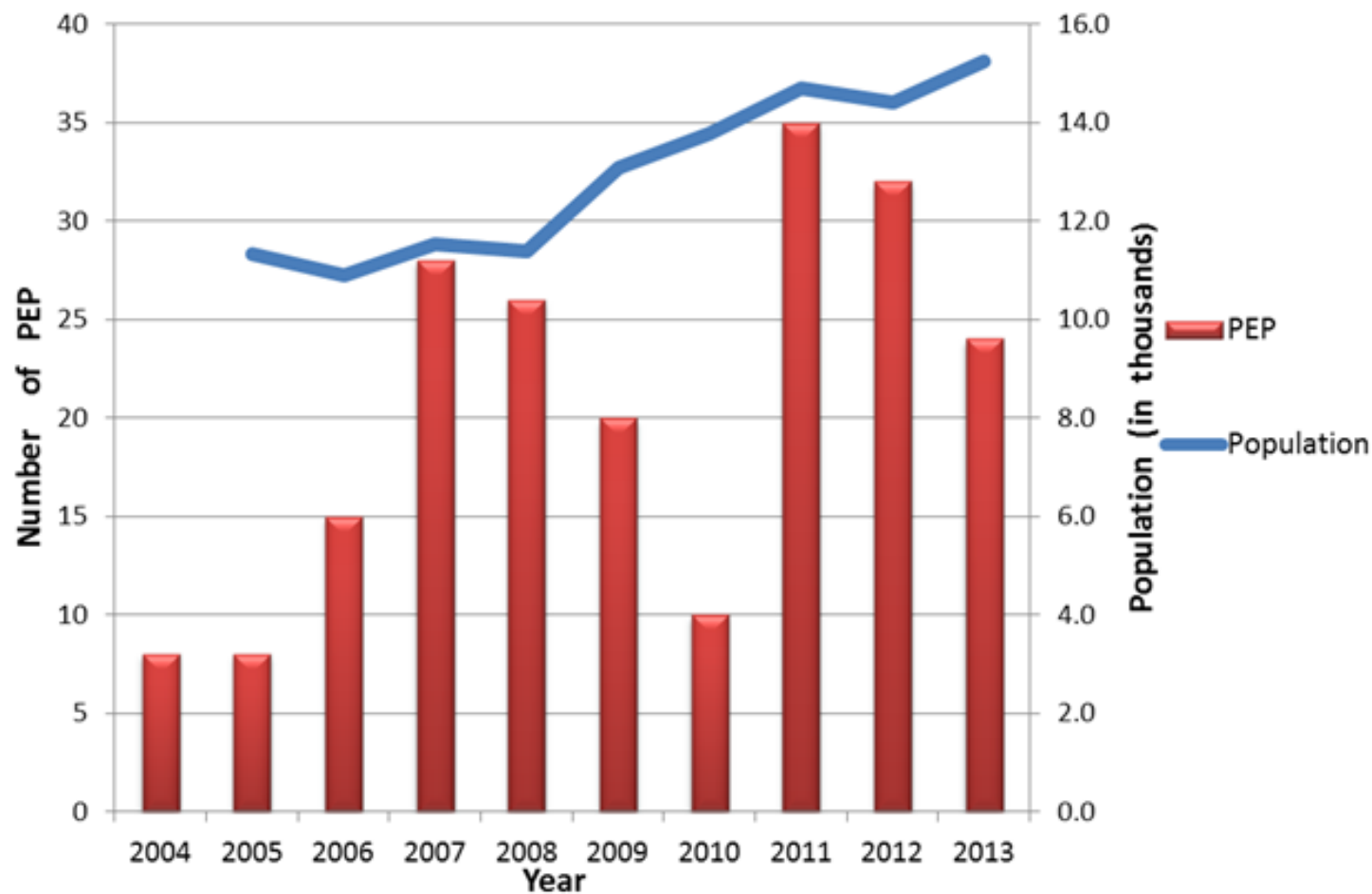
Year	Number	Percentage
2004	15	7.04
2005	15	7.04
2006	8	3.76
2007	28	13.15
2008	26	12.21
2009	20	9.39
2010	10	4.69
2011	35	16.43
2012	32	15.02
2013	24	11.27
Grand Total	213	100.00

Results

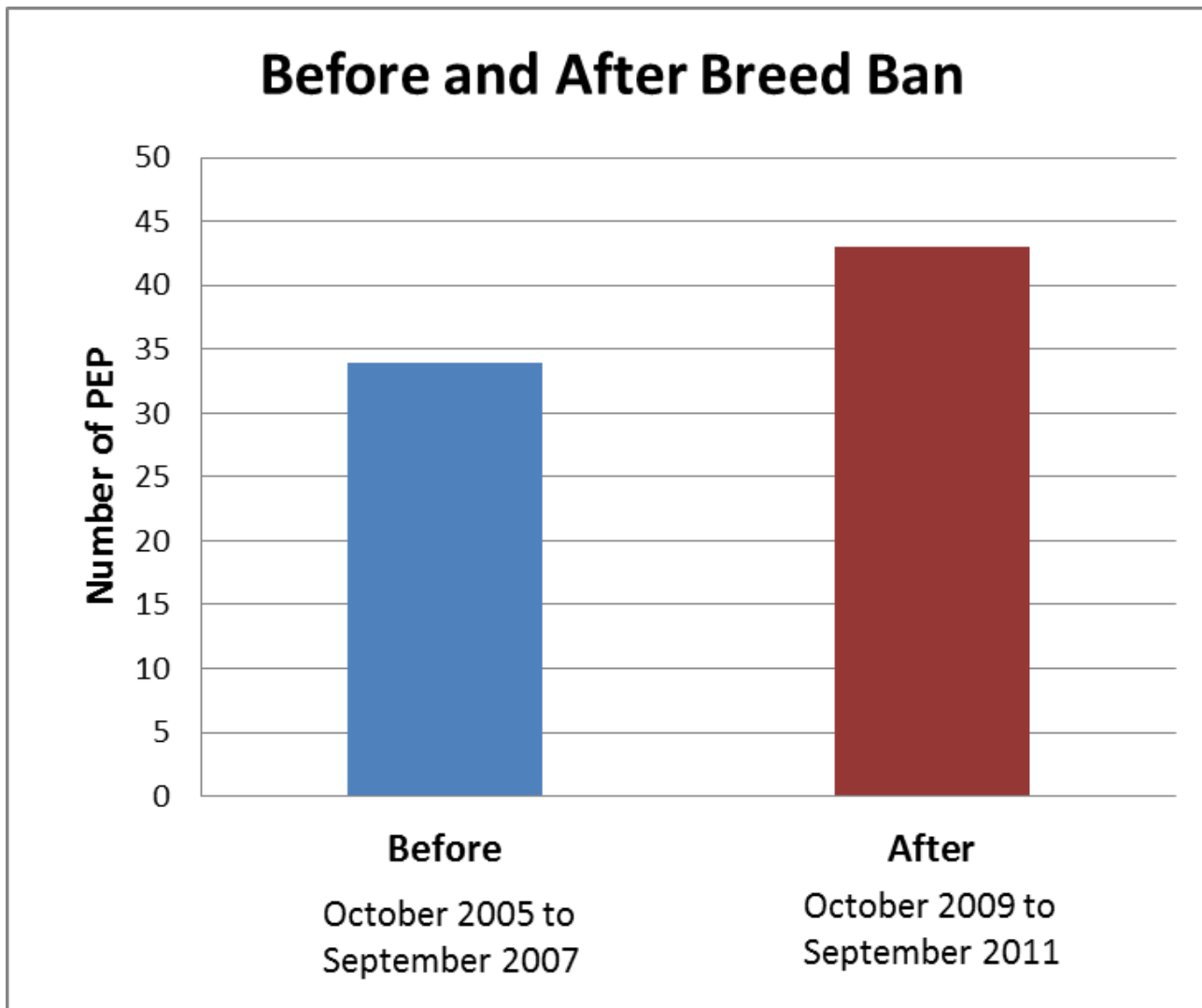


Results

Number of PEP Series Initiated and Population on Fort Riley per Year



Results



Discussion

- Population living on post compared to number of PEP series initiated
- Increase in PEP usage from before to after breed ban

Public Health Implications

- Greater awareness of PEP usage on Fort Riley
- PEP usage varies widely from year-to-year
- The usage of PEP on Fort Riley has increased from 2005 to 2013, but the incidence of bite related-injuries seen at the IACH ER has not significantly changed

Part 3

Total Dog Bite Reports and the Number of Reports Received by Next Duty Day

Dog Bite Reports

Background

Background

- Patients seen at any of the clinics on Fort Riley that reported a dog bite incident are given a Bite Form to fill out and return to the attending physician at IACH
- Medical personnel at IACH are then responsible for turning these forms in to Veterinary Services by the next duty day to ensure quick action

Dog Bite Reports

Methods

Methods

- Time period for this study was 01 January 2003 to 31 December 2012.
- Collected data on the number of bite reports filled out and the number of bite reports that were received by Veterinary Services by the next duty day
 - Data from 2003 to 2012 was obtained from Public Health Command
 - Determined the number of reports per year that were received by next duty day
 - Determined the average percentage of reports that were and were not received by the next duty day per year
 - Determined the average percentage of reports received and not received for the entire 10-year period

Dog Bite Reports

Results

Results

- Total number of Reports
- 701
- Highest percentage of reports received in 2007
- 97%
- Lowest percentage of reports received in 2004
- 56%

Results

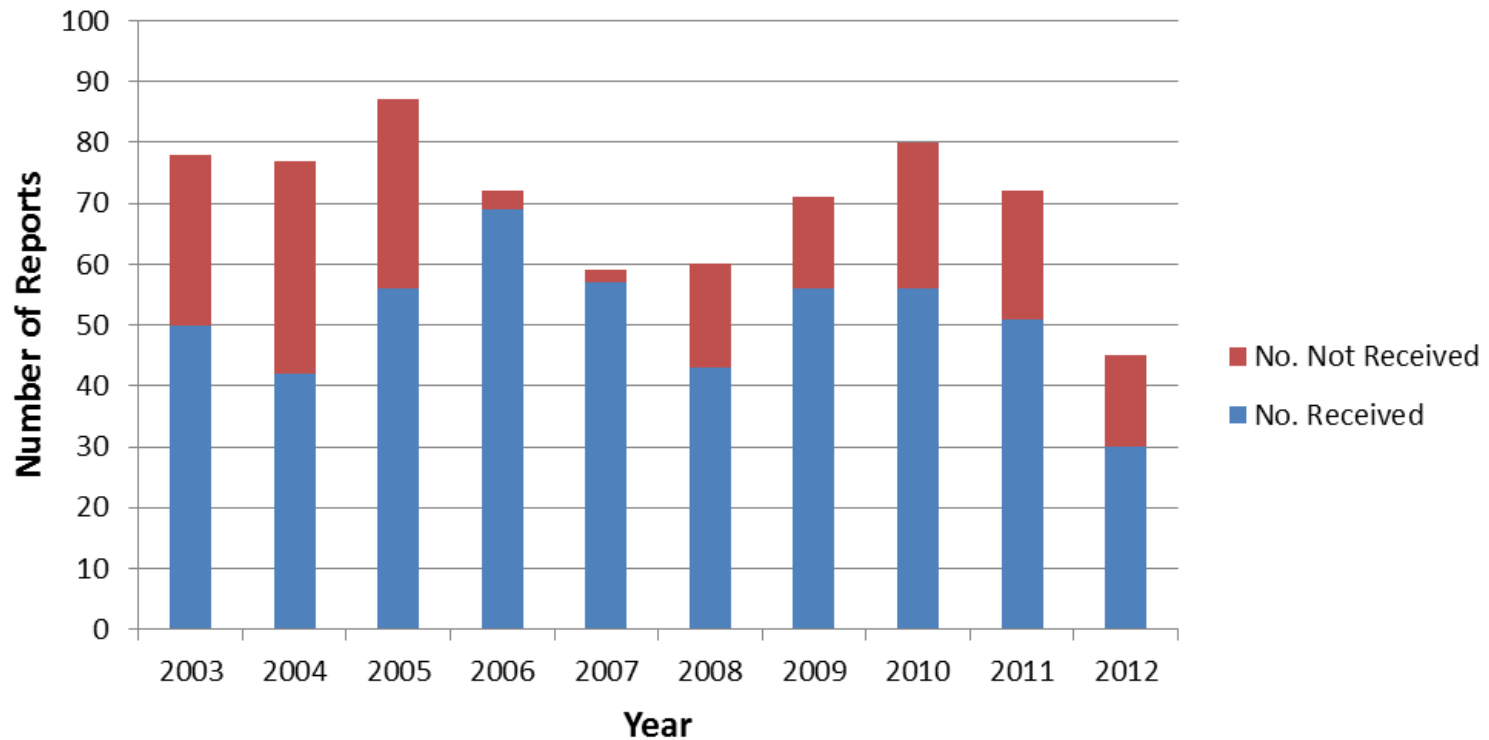
- Overall
 - 73.75% received by next duty day
 - 27.25% *not* received by next duty day

Results

Year	Total Number of Reports	Number of Reports Not Received	Average Percent of Reports Not Received
2003	78	28	35.89
2004	77	35	45.45
2005	87	31	35.63
2006	72	3	4.17
2007	59	2	3.39
2008	60	17	28.33
2009	71	15	21.13
2010	80	24	30.00
2011	72	21	29.17
2012	45	15	33.33
Total	701	191	27.25

Results

Number of Reports Received and Not Received by Next Duty Day per Year



Discussion

- 2006 and 2007 had the highest percentages of reports received by the next duty day
- 2003, 2004 and 2005 had the lowest percentages of reports received by the next duty day

Public Health Implications

- No pattern in the percentage of reports received at Veterinary Services by next duty day
- Overall, the number of reports that are turned in to Veterinary Services needs to increase to effectively protect the public from further dog bite incidences

Overall Study Limitations

- Population
 - Calculated using multiplier of 2.7
 - Only included those that live on post
 - Not included in population numbers: civilian workers, soldiers that commute to Fort Riley everyday for work, family members that commute to Fort Riley for various reasons (commissary, Post Exchange, military event, etc.)
 - Census obtained at one point throughout year
 - Does not take into account the fluctuation in population due to deployments
- Incomplete data
 - Original goal of study
 - Veterinary Services

Recommendations

- Irwin Army Community Hospital
 - Ensure completion of bite reports and submission of reports to Veterinary Services in a timely manner
 - Designate position that is responsible for ensuring reports are submitted to Veterinary Services by end of duty day
- Fort Riley
 - Rescind Banned Dog Breed Policy
- Veterinary Services
 - Maintain more accurate and organized records of dog bite forms
- Education
 - In-Processing
 - Provide educational pamphlets for family members of soldiers upon in-processing to new unit
 - Events
 - Provide annual events on Fort Riley on education of rabies and proper behavior and handling of dogs

Field Experience

Fort Riley Department of Public Health

Preceptor
COL Paul Benne
Chief of Department of Public Health

Rotations

- Environmental Health
- Industrial Hygiene
- Occupational Health
- Army Hearing Program
- Army Public Health Nursing
- Army Wellness Center
- Veterinary Services

Environmental Health

- Food Service Sanitation and Inspections
 - Inspected United Service Organizations, Inc. (USO)
- Water Quality and Surveillance
 - Collected water samples from water wells around post and at the Morale, Welfare and Recreation (MWR) Facility
- Child Development Center Sanitation and Inspections
 - Inspected School-Age Service
- Hospital Waste Management
 - Inspected Farrelly Pharmacy
- Disease Vector Surveillance
 - Learned basics of genus identification of mosquitoes and ticks found in the Fort Riley area
- Other Inspections
 - Airfield Barber Shop
 - Flint Hills Job Corp.

Industrial Hygiene

- Air sampling
- Radiation
- Ergonomics
- Indoor air quality
- Noise
- Ventilation

- Observations
 - Ergonomic chair
 - Surgical suite ventilation

Occupational Health

- Medical surveillance/screening
 - Hearing tests
 - Spirometry tests
 - Vision screening
- Other requirements
 - Immunizations
 - Physicals
 - Tuberculosis screening
 - In-processing
 - Pregnancy surveillance
 - Worksite evaluations
 - Personal protective equipment

Army Hearing Program

- Hearing loss prevention
- Inspected the type of ear plugs and ear plug positioning/fit of soldiers at a long-distance shooting range
 - Fitted soldiers with earplugs based on shape and depth of ear canal
 - Ensured correct fit of ear plugs

Army Public Health Nursing

- Health and Wellness
- Prevention
- Communicable diseases

- Inspections
 - Three Child Development Centers
 - Record review
 - Classroom walk-through
 - Review of special needs binder
 - Documentation of findings

- Community Partner Meetings
 - Nurse-Family Partnership
 - Maternal Child Health
 - Geary County Perinatal Coalition – Delivering Change

Army Wellness Center

- Health assessment review
- Physical fitness testing
- Metabolic testing
- Stress management
- Tobacco education
- Behavior change

Veterinary Services

- Food Sanitation and Inspections
 - Food Safety Codes, Laws and Regulations
 - Inspection of food products on receipt and in storage
 - Determination if storage conditions are within regulation
 - Evaluation of packaging, packing and marking requirements
 - Identification of unsanitary conditions in food storage facilities
- Animal Preventive Medicine
 - Orientation to animal preventive medicine
 - Identification of zoonotic diseases of concern
 - Evaluation of animals for potentially zoonotic disease
 - Treatment/management of disease in the animal population
 - Veterinary involvement in bite cases
 - Child Development Center animal inspections
- Inspected the Commissary

Acknowledgements

- COL Paul Benne
- Dr. Cates, Dr. Nutsch, Dr. Wilkerson
- Barta Stevenson
- Kris Bourland
- Shaun Collins
- Stephen and Deborah Hammonds

THANK YOU



Questions?