Arizona Tribal RMSF Statewide Response Plan Outline

Table of Contents

Introduction and Background 2
Organization of the Plan 3
Tiered Impact Approach to RMSF 3
Planning Assumptions 3
Statewide RMSF Response 4
Environmental Tick Control and Surveillance 5
Risk Assessment 5
Risk management: Decision Making 6
Tick Surveillance Strategies 6
Community Outreach and Education 10
Health Care 12
Animal Control 14
Development of an Animal Control Program 14
Decisions to be made 15
Development of an RMSF response 16
Budget 18
Tribal Legal Authorities 18
Ethical Considerations 18
Inter-jurisdictional Health Activities 18
Special Needs and At-Risk Populations 18
Response Activity Supplement Overview 18

DRAFT

Arizona Tribal RMSF Statewide Response Plan Outline

Introduction and Background

Rocky Mountain spotted fever is a severe and potentially fatal tickborne bacterial disease. In 2003, a new RMSF tick vector (*Rhipicephalus sanguineus* - the brown dog tick) was identified in Arizona in association with an emerging focus of human RMSF cases in an area where the disease had not been previously reported. This tick is extremely common, feeds primarily on dogs, and lives in and around homes. This close contact with humans makes the incidence of RMSF higher in these communities than in areas of the country where woodland ticks are the vectors. Since 2003, over 240 human cases, including 15 deaths, have been reported from six tribes (White Mountain Apache Tribe, San Carlos Apache Tribe, Gila River Indian Community, the Tohono O'odham Nation, Hopi Tribe and the Navajo Nation) in Arizona. Lack of access to animal control, veterinary services, and pest control has allowed this tick vector to flourish on affected reservations. The tribes, IHS, ADHS and CDC have committed staff and resources to addressing this public health problem since 2003, but despite these efforts, the number of cases reported each year has continued to increase. More importantly, fatalities have continued to occur, especially among children. Limited resources and infrastructure are hampering important interventions such as an effective animal control program, veterinary care to control the dog population through permanent spay-neuter programs, integrated pest management techniques, and sustained physician education for early treatment of human cases.

LIST OF ABBREVIATIONS

Abbreviation	***Definition***
ADHS	Arizona Department of Health Services
ASPHL	Arizona State Public Health Laboratory
CDC	Centers for Disease Control and Prevention
IHS	Indian Health Service
RMSF	Rocky Mountain spotted fever

DRAFT

Organization of the Plan

This is a response plan for a RMSF outbreak that may occur on tribal lands in Arizona. The response activities will be carried out in collaboration with ADHS, IHS, tribal health departments and local and federal agencies.

This plan has outlined the use of a three tiered approach for a response to RMSF and the environmental, behavioral, financial and ethical considerations that may be appropriate at each phase.

Tiered Impact Approach to RMSF

High Impacted Areas

High impacted areas are areas that have seen sixteen or more human cases

OR

areas with more than 50% canine seroprevalence

Low Impacted Areas

Low impacted areas are areas that have seen between one and fifteen cases

OR

areas with 20-50% canine seroprevalence

At Risk Areas

At risk areas are areas that have seen no human cases

OR

areas with less than 20% canine seroprevalence with high numbers of free roaming dogs or large tick populations

Planning Assumptions

The development of the statewide RMSF response plan is based on the following assumptions:

i. RMSF is likely to spread to other areas and potentially become endemic in other areas
ii. Patients are likely to go to hospitals that are unfamiliar with tribal lands/RMSF
iii. RMSF will require substantial interaction between Tribal and State, Local, and Federal governments

DRAFT

Statewide RMSF Response

The statewide RMSF response plan comprehensively addresses the concepts listed below, which provide very detailed planning and response activities for all three categories of impacted areas.

i. Environmental Tick Control and Surveillance
   a. *Development of programs for tick surveillance, risk assessment, and best practices on tick control*

ii. Community Outreach and Education
   a. *Development of best practices for a community outreach education toolkit*

iii. Health Care
   a. *Best practices on reporting to tribal, state, and local public health, investigation and follow-up of suspect RMSF cases, treating human RMSF cases and addressing clinical education*

iv. Animal Control and Veterinary Programs
   a. *Development of steps and resource needs for the development of comprehensive animal control programs*

v. Financing and Budgeting
   a. *Development of budgets to support a comprehensive RMSF control program encompassing animal control, environmental surveillance, tick control, community outreach/education, public health surveillance/investigation, and clinical education*

DRAFT

Environmental Tick Control and Surveillance

Development of programs for tick surveillance, risk assessment, and best practices on tick control

Dogs are the brown dog tick's preferred host, therefore killing ticks on the host (dogs) is critical for controlling the tick populations. The brown dog tick feeds on a dog three times to complete its life cycle, dropping off the host between feeding. Though dogs are the preferred host, it occasionally feeds on other hosts when there are heavy infestations, such as people.

Pet owner responsibility is essential to ensure dogs are kept free of ticks and based on field experience in tribal communities many residents do not regularly treat dogs for ticks. Reasons may include a lack of financial resources, inability to catch the dog, not thinking tick treatment is important, not treating dogs frequently enough to be effective, and others. It is therefore prudent to have a public program in place to provide regular control of ticks on dogs.

Providing tick control services to reduce the amount of ticks on dogs can be done door-to-door, by providing products for free or low-cost and by providing treatment at pet clinic events (such as rabies clinics and spay/neuter clinics). Several topical treatments and tick collars are effective at controlling ticks on dogs. Areas with free roaming dogs are at greater risk of RMSF due to their increased likelihood of exposure to ticks and these animals are less likely to receive treatment and thus can further spread.

The development of a program to provide regular tick control services for each home in the affected areas is crucial. Services need to include tick control practices for outdoor treatment and indoor treatment where infestation is indicated. The development or enhancement of efforts to remove debris and solid waste is also necessary because these areas support tick habitat around the home. Programs to assist homeowners in the removal of debris and waste can be successful in removing large amounts of waste if resources are available. Solid waste can also harbor ticks and should be removed.

Assessing RMSF risk is essential to determining and implementing appropriate and effective tick control measures. Surveillance can provide measurement and direction for prevention efforts. By following Integrated Pest Management principles, tick control measures are most effective when custom tailored to your specific environmental conditions.

Risk Assessment

Assessing RMSF risk is essential to determining and implementing appropriate and effective tick control measures.

The tick control committee developed a comprehensive form that incorporates questions in three main areas: human (e.g. knowledge and awareness of RMSF), dog (e.g. observe dogs for ticks, free roaming dogs) and living environment (e.g. assess the home and surroundings for tick harborage).

DRAFT

Note: See appendix for home assessment

Risk management: Decision Making

Low Risk = Response may be focused on one specific finding from the risk assessment
Moderate Risk = Response may include several interventions
High Risk = Response should be broad and comprehensive

NOTE: See appendix for pie chart and flow chart of risk management

Framework for interpreting assessment results and making recommendations for appropriate controls

Tick Surveillance Strategies

Surveillance can provide measurement and direction for prevention efforts.

Canine Tick Load

A canine tick load can be used as an indicator of a community-wide tick problem or a property/area-specific tick problem that can be assessed and can provide a baseline used to measure interventions that may be implemented as well as be used in combination with other factors to determine the risk and impact of a community or property.

An observational method approach will be used to assess the risk and impact via canine tick load surveillance strategy. This strategy will be most effective if taken from a random representative samples throughout the community and proper sample size is obtained. While collecting information, considerations such as seasonal differences and additional canine information (i.e. presence of a tick collar, indoor/outdoor pet) will be beneficial for data interpretation.

Limitations of using a canine tick load count as a surveillance strategy include treated/protected (i.e. dogs with tick collars and/or indoor pets) and temperature or seasonal differences may affect the results of the count.

Environmental Tick Load

CONSIDERATIONS

- Carbon Dioxide Tick Trap
- Drags and flagging (do not work well for the Brown Dog Tick)
- Environmental Assessment/Inspection

METHODS & RESOURCES

- Dry ice emits carbon dioxide and attracts ticks
- Ticks are gathered on flannel cloth
- Provides estimates of tick load
- Observation of ticks in the environment - Environmental Assessment Forms

LIMITATIONS

- Limited laboratory capacity for counts and species identification
- Results variable depending on weather conditions (wind, rain) and seasonal differences
- Availability of dry ice

Canine Seroprevalence

CONSIDERATIONS

- Baseline, Investigative, Evaluative Measures
- Conducted by Veterinarians and Veterinarian Technicians
- No rapid clinical test available
- Laboratory analysis required

METHODS & RESOURCES

- Consider age of dog when developing strategy
- Frequency of sampling depends on use of data
- Veterinarian/Vet Tech

LIMITATIONS

- Laboratory capacity
- Limited funding
- Requires specific expertise (Veterinarian/Vet Tech)

Tick Rickettsial Prevalence

CONSIDERATIONS

- Testing ticks to determine infectivity
- Typically used in specific outbreak or case investigations

METHODS & RESOURCES

- Collected from dogs and or tick traps
- Requires laboratory analysis
- Canine seroprevalence is more commonly used to determine RMSF activity

LIMITATIONS

- Funding
- Laboratory capacity
- May require a large number of tick samples

Climate Considerations

CONSIDERATIONS

- Monitoring climate trends to understand changes in tick populations

DRAFT

- Monitoring weather conditions to predict tick activity

METHODS & RESOURCES

- Requires monitoring of trends in climate over long periods of time
- Local weather data
- Can be used in combination with field observation and or complaints
- Can help determine most effective times of control activities

LIMITATIONS

- May require local weather station
- Dedicated staff and expertise

Control measures

- By following IPM principles, tick control measures are most effective when custom tailored to your specific environmental conditions.
- *Integrated Pest management*
- Ideally, individuals take responsibility for tick control on their dogs and homes
- Out of necessity, Gov. programs providing tick treatment
- Dogs need year round protection from ticks
- Ticks feed and breed on dogs. <u>That's when we can get 'em!</u>

Reduce Tick Habitat

- Outdoors: Remove vegetation and solid waste. Routinely inspect dog housing. Indoors: general sanitation, clutter removal, routine dog bed laundering

Pesticide application

Product Selection and Cost

a. Application equipment cost
b. Pesticide Cost
c. Application rate
d. Residual
e. Travel Time
f. Manpower
g. Training
h. Efficacy

Product cost (excluding staff & capital) = [product cost per dog] x [number of dogs to be treated] x [number of treatments needed per year]

Tick Collar Examples:

- Propoxur collar $3.50 each x 2,600 dogs x 4 treatments per year = $36,400. Providing collars door-to-door would require visiting 1,105 homes four times per year. Estimate 1 FTE with vehicle visiting 40 homes per day for 110 work days, or nearly 6 months'
- Switch to $40 collar lasting 8 months = $156,000 and 1 FTE visiting 40 homes/day for 41 days

- Pesticide Examples:
- 25 lb bag Permethrin granules ($18 each / 6 homes treated per bag) x 2,400 homes x 12 treatments per year = $86,400
- 10% liquid Permethrin concentrate diluted and applied by pickup mounted 50-gal gas powered high volume sprayer
- $10.66 per home site treated x 2,400 homes x 12 treatments per year = $307,008

Estimated Labor requirements

Pesticide application method	**Estimated number homes treated per team per day**
Granules – seed spreader	45
Liquid – RTS hose attachment	18
Liquid – hand pump sprayer	30
ATV mounted sprayer	55
Pickup mounted sprayer	35

DRAFT

Community Outreach and Education

Develop best practices for a community outreach education toolkit

High Impacted Reservation Lands

- Creation and implementation of a universal RMSF infectious disease protocol for tribes to follow
- Mobilization of public health officers, community health representatives, health educators, animal control officers, and environmental health representatives
- Communication and coordination between all involved agencies and tribes (i.e. ADHS, HIS, CDC) for massive community outreach and education (i.e. presentations, panels)
- Electronic copies of universal educational material including handouts, powerpoints, and reports for easy access; large amounts of paper and printers for mass material printing
- RMSF toolkit for specific target audiences (i.e. public, physicians, veterinarians)
- Healthcare providers are aware of RMSF and can educate to tribal members in English and tribe's language (healthcare providers who speak tribe's language and English)
- Disseminate information on specific relevant topics: doxycycline use, pesticide label reading and use
- Vehicles, preferably ATV's or four wheel drive trucks for pesticide application
- Home site assessments for RMSF potential and ticks
- Especially at positive human case homes
- Emergency education dissemination:
- Local schools and senior centers
- PSA's via radio and T.V.
- Local leaders and clinicians

Low Impacted Reservation Lands

- Mobilize community for RMSF education panels and presentations at town halls, schools, large facilities, etc.
- Emphasizing importance of flea and tick collars, spot on treatments, dog dips
- Increase education on spay and neuter
- Identify existing animal control policies and ordinances – make changes as needed
- Home site assessments for RMSF potential
- Especially at positive human case homes
- Healthcare providers are aware of RMSF and can educate to tribal members in English and tribe's language (healthcare providers who speak tribe's language and English)
- Presentations that update healthcare providers on current reports and new cases

At Risk Reservation Lands

- Distribute community education on RMSF (handouts and brochures)
- Inform healthcare facilities and programs, especially nurses and doctors about the threat of RMSF
- CDC algorithm and reports to be reviewed and used by healthcare workers

DRAFT

- Coordinate tribal veterinarians and animal control officers before cases of RMSF occur
- Create pesticide programs
- Detailed list of local stores selling preventive pesticide products: insect repellant, pesticides, flea and tick collars, spot on treatments – if local stores are not carrying these products, encourage them to begin
- Encourage community clean ups to remove yard debris (i.e. mattresses, furniture)

DRAFT

Health Care

Best practices on reporting to tribal, state, and local public health, investigation and follow-up of suspect RMSF cases, treating human RMSF cases and addressing clinical education

Response activities for all areas:

- RMSF patient transfer protocol developed to educate healthcare professionals and ensure the safety of the tribal members. Follow up to ensure treatment continues.
- Indian Health Services to require 1 hour CME for all MD, PA & nursing staff providing care to Arizona and New Mexico Tribes
- Request that the AZ Department of Health communicate with the Arizona Medical Association for CEU requirement contingent for license renewal for all medical professionals.
- For AZ Department of Health to establish appropriate protocols for lab testing & reporting: which labs, mandatory reporting / notification to state, healthcare facility & tribe points of contact.
- Establish a clinical task force involving all areas: high, low & at risk

High impact areas:

- Mandatory use of algorithm, daily ED log review and automatic notifications
- Mandatory training of physicians, PA, Public Health Nurses
- Appointment of RMSF infectious control MD & Public Health Nurse for each healthcare facility
- RMSF patient transfer protocol developed to educate healthcare professionals
- Develop incentive for patients to return for convalescent blood sampling – Paired blood sample is very important
- Development of patient friendly education while at the hospital to understand what is happening with their family member
- Limited high-level oversight of the clinical care relative to RMSF (reactionary rather than proactive) especially within the Phoenix region
- Highest level of response (algorithm plus ED log) not reviewed as sustainable, since only one person is tasked with doing it – Need to institutionalize.
- Communication……communication……communication between healthcare facility, state, & tribe
- Document search of records especially when canine seroprevalence is >50% - something is happening in the community working with healthcare facility with possible consultation with CDC
- Mandatory algorithm and treatment of all suspect patients to reduce morbidity and mortality
- Appointment of RMSF infectious control MD & Public Health Nurse for each healthcare facility
- RMSF patient transfer protocol developed to educate healthcare professionals
- Develop incentive for patients to return for convalescent blood sampling – Paired blood sample is very important

DRAFT

- Communication from Tribes about risk status, in order to procure the highest level of proper clinical care.

Low impacted:

- Establish weekly ED log review and ensure suspect patients are treated & tested
- Develop incentive for patients to return for convalescent blood sampling – Paired blood sample is very important
- Development of patient friendly education while at the hospital to understand what is happening with their family member
- Activity at a healthcare facility is currently very person-dependent (only works with an enthusiastic staff member is identified)
- Lack of required/mandatory MD, PA and nursing staff training on RMSF.
- Develop incentive for patients to return for convalescent blood sampling – Paired blood sample is very important
- Need dedicated field staff point of contact to complete follow up homecare visit; assess environment
- RMSF treatment of all suspect patients to reduce morbidity and mortality.
- Establish a chain of command for referral cases and point of contact for follow up.
- Home assessment is a valuable tool that can saves lives and communities.
- Count cases – to track cases and identify areas needing environmental intervention through diagnostic testing strategies.

At risk areas

- Focus on MD, PA, and public health nursing staff RMSF education and training on diagnostic testing
- Proactive measures - Education to general public on integrated pest management: decrease the number of dogs, treatment for the tick, debris removal, tick checks and use of DEET products
- Coordination of human resource educators to get to each community and provide education.
- For tribal leadership within local communities to understand and provide enough time within meetings, sessions etc to provide RMSF critical education to the people.
- Tribal departments and divisions to actively educate all employees.
- RMSF educational outreach in schools is critical.
- Develop protocol for ED reviews, automatic flags for doxy prescription & testing, convalescence testing
- CME for all healthcare providers on RMSF clinical presentation, risk factors and epi information
- Laboratory protocols and reporting between healthcare facility, state & tribe

DRAFT

Animal Control

Developmental steps and resource needs for the development of comprehensive animal control programs

- Animal Control is an issue in Indian Country that has not been given its due attention, importance and resources.
- Be it because it's cultural and that it's non-human, it gets ignored until a crisis arises.
- It is this lack of an established Animal Control Program that Rocky Mountain Spotted Fever (RMSF) and other zoonotic problems have flourished.
- Thus the decision to establish an Animal Control Program needs to be tempered with not only the crisis at hand, but also with the concerns and needs of the Tribes future.
- It is with this in mind, we offer the following information to be considered in the development of an Animal Control Program and protocol for dealing with RMSF.

Development of an Animal Control Program

- Decision needs to be made as to what you want the Program to focus on
- Public Health: Primary concern is zoonotic diseases (Rabies, RMSF, Lyme disease, etc.)
- Enforcement: Primary concern is ensuring ordinance compliance
- Difference is:
    - Public Health has a mindset of prevention. Stopping the transmission of a zoonotic disease. In order to accomplish this task, some tools used are education, warnings and public health enforcement of laws/ordinances.
- Enforcement has the mindset to deal with animal related issues as "breaking the law" and use of enforcement first with minimal or no thought of public health issues.
- Combining <u>both is best</u> to consider
    - *Public Health vs. Enforcement*
    - Pros (Public Health)
        - Puts the public first
        - Treatment of victims takes precedence
        - Looked up to as good
    - Cons (Public Health)
        - It is not total enforcement
        - Can't deal with biggest "the meat" of the problem in zoonotic disease
        - Nobody wants to deal with it
        - Puts animals last
    - Pros (Enforcement)
        - Puts animals first
        - No ambiguity
        - Takes care of the "meat" of the problem
    - Cons (Enforcement)
        - Not Public Health
        - Looked down upon

DRAFT

        - Human aspect is almost zero
        - Do not consider pets as a member of the Family

Decisions to be made

Decisions to be made before and after Program implementation:

- Program position
    - *If not already decided,* which area should the Program be situated (Public Health, Law Enforcement, Natural Resources, or other areas)
- Laws (ordinance, resolutions)
    - Should be tailored to the needs of the Tribe and in support of what the main focus will
    - Ensure sections have been included within the laws that will allow for extra enforcement of zoonotic issues when needed
- Impoundment of animals
- Facility, length of stay for various categories
- Euthanasia
    - When, by whom, disposal
- Release to owners
    - Fees, vaccinations
- Adoptions
    - Fees, refunds
- Rescue groups
- Veterinary care
    - Vaccinations, parasite control, health care, spay/neuter capability
- Monitoring for diseases (working with other health related programs whether it be local, county, state, federal)
- Development of network with public health related entities
- Realistic number of employees to deal with size of reservation (time for travel, number of animals within community, wants/needs of Tribal members and leadership)
- Education (owner responsibility; importance of spaying/neutering, cultural issues)
- Budget (startup and recurring annual costs such as facility, vehicles, equipment, personnel, supplies, fuel, vaccine, animal food, repairs & maintenance)
- Revenue (services and fees charged reverted back to Program to help offset expenditures)
- Should the Animal Control Program & Veterinary Services be separate

DRAFT

Development of an RMSF response

Develop a coalition of the following entities

- Community Resources
    - CDC
    - IHS
    - ADHS
    - Counties
    - RAVS
    - National Animal Control Association
    - National Humane Society
    - Emergency Management
    - Community Housing
    - Public Works
    - Corrections
    - Districts/Chapters
    - Transportation

Evaluate Target Area

- Assess target area for number of roaming dogs and their condition
- Blood draws

Decide what type of tools to use

- Ordinance enforcement such as roaming dogs, limit of K-9s
- Evaluate most feasible means to capture and /or contain roaming dogs (owned & stray)
- Tick control measures
- Mass tick dipping
- Other tick control measures such as topical and collars

Education

- Distribution of educational material dealing with RMSF
- 1 on 1
- Brochures
- Flyers
- PSA's
- Radio
- TV
- Utility bills

Meet with Stakeholders

- Discuss plan
- Coordinate efforts
- Finalize plan for implementation

DRAFT

Plan implementation

- Address residents in Target Area
    - Mass meeting
    - Door to door
- Set up mobile tick dip station near target area
- Have ACOs make initial sweep of roaming dogs
- Conduct door to door campaign
    - Offer rabies vaccination/health shots
    - Request permission to draw blood for RMSF testing
    - Complete survey with animal information for history
    - Put a tick collar on dog before leaving
    - Document dogs that look sick
- Set up ACO follow-up in Target Area
    - Roaming dogs
    - Check on sick dogs
- Evaluate results from RMSF testing
    - Determine whether control measures need to be increased or simply maintained
    - Visit households where positive dog cases were identified
        - Evaluate animal
        - Treat if deemed appropriate
- Continual monitoring by Program for roaming and sick dogs
    - Set time intervals as deemed necessary
- Follow-Up
- Conduct another RMSF blood draw approximately 6 months after initial testing
- Looking for evidence of current control measures containing the disease
- Conduct mini vaccination clinics
    - Request blood draws
    - Conduct animal history survey
    - Offer tick control such as tick dips, tick collars or topicals
- Evaluate results
    - If contained, maintain current control measures
    - If spread, re-evaluate and increase control measures
    - Visit households of positive results
        - Evaluate dogs health
        - Treat as deemed necessary
    - Evaluate surrounding of household
        - Look for causes of ticks and contact other Programs that may deal with issue(s).
- Conduct RMSF blood draws as deemed appropriate to measure containment and effectiveness of control measures.

DRAFT

Budget

Budgets to support a comprehensive RMSF control program encompassing animal control, environmental surveillance, tick control, community outreach/education, public health surveillance/investigation, and clinical education

Tribal Legal Authorities

Ethical Considerations

- Prioritization of resources
- The risk of the interventions needs to be fully disclosed to the population (If you choose not have your home treated...)
- Workers need to be fully informed of the risk hazards (chemicals, dog bites, tick exposure)

Inter-jurisdictional Health Activities

- Interstate (NM, AZ, UT, NV, CA)
- Inter-Tribal
- International (Mexico)

Special Needs and At-Risk Populations

Response Activity Supplement Overview

DRAFT