

Master of Public Health

Integrative Learning Experience Report

**EVALUATING AND STRENGTHENING PUBLIC HEALTH COMMUNICATION
STRATEGIES RELATED TO RABIES IN VERMONT**

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Abstract

Rabies is a nearly universally fatal zoonotic disease once symptoms develop, requiring timely exposure assessment and post-exposure prophylaxis (PEP) to prevent mortality. Although human rabies is rare in the United States, wildlife reservoirs are the only natural hosts of the rabies virus, particularly bats, and continue to drive human exposure risk in the country. In 2024 and 2025, Vermont reported sustained wildlife rabies activity and substantial post-exposure prophylaxis (PEP) utilization, with 61% of administrations associated with bat exposures. The purpose of this Integrative Learning Experience (ILE) was to evaluate rabies communication strategies used by the Vermont Department of Health (VDH) and to identify opportunities to strengthen clarity, consistency, emphasis on proportional risk, and decision support for exposure management. The objectives were to identify and organize publicly available rabies materials, evaluate communication quality and alignment, and identify opportunities to enhance Vermont's rabies communication framework.

This Applied Practice Experience (APE) was conducted at VDH in Waterbury, Vermont, over approximately 260 hours. A structured qualitative review of nine (9) publicly accessible rabies-related documents was conducted between January and April 2026. Materials were categorized across surveillance reporting, public education, clinical guidance, laboratory coordination, reporting forms, and website content. Documents were assessed using predefined criteria informed by health literacy principles, behavioral theory, and elements of the Centers for Disease Control and Prevention (CDC) Program Evaluation Framework. Cross-document analysis identified patterns in terminology, risk framing, action-step clarity, and alignment across communication domains.

Findings indicate that Vermont's rabies communication system is comprehensive and operationally strong within the context of sustained bat-associated exposure burden. However, variability in exposure definitions, reporting terminology, and procedural sequencing was observed across materials. Bat-associated exposure risk was acknowledged but varied in specificity and emphasis. Notably, no consolidated provider reference tool existed; clinical guidance and reporting information were dispersed across documents, potentially limiting rapid usability in time-sensitive scenarios.

To address this gap, a concise provider-focused rabies exposure and PEP quick-reference guide was developed to standardize terminology, clarify stepwise actions, integrate reporting requirements, and emphasize bat-associated risk. Adoption of this tool and incorporation of routine cross-document communication review into rabies program operations may enhance clinical efficiency, reporting consistency, and evidence-based rabies prevention practice in wildlife-endemic settings.

Subject Keywords: Rabies; Risk awareness; Post-Exposure Prophylaxis; Bat Exposure; Zoonotic Disease; Public Health Communication.

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Chapter 1- Literature Review

1.1 Rationale and Background

1.1.1 Rabies as a Global and National Public Health Concern

Rabies remains one of the most fatal infectious diseases known to humans, with nearly 100% case fatality once clinical symptoms appear (World Health Organization [WHO], 2023).

Globally, rabies is estimated to cause approximately 59,000 human deaths annually, with the majority occurring in low- and middle-income countries where dog-mediated rabies remains endemic (WHO, 2023). While rabies mortality in the United States is rare due to widespread vaccination of domestic animals and availability of post-exposure prophylaxis (PEP), the disease continues to pose a persistent zoonotic threat through wildlife reservoirs (Centers for Disease Control and Prevention [CDC], 2024a).

Rabies is caused by viruses in the genus *Lyssavirus* of the *Rhabdoviridae* family and is transmitted primarily through the bite of an infected mammal, via virus-containing saliva entering tissue (Rupprecht et al., 2019). The incubation period can vary from weeks to months, depending on the location and severity of exposure (CDC, 2024a). Once neurologic symptoms develop, rabies is almost universally fatal, underscoring the critical importance of timely post-exposure management (WHO, 2023). Because of this extreme lethality, timely and appropriate post-exposure management is essential.

In the United States, canine rabies virus variants have been largely eliminated due to successful vaccination programs; however, wildlife rabies persists (Ma et al., 2020). Raccoons, skunks,

foxes, and bats serve as the primary reservoirs of rabies virus variants in different geographic regions (CDC, 2024b). As a result, public health prevention in the U.S. focuses not only on domestic animal vaccination but also on wildlife surveillance, oral rabies vaccination (ORV) programs, and rapid response to human exposures.

1.1.2 Wildlife Rabies in the Northeastern United States and Vermont

The raccoon rabies virus variant is endemic in the eastern U.S., and raccoons (*Procyon lotor*) remain a major driver of terrestrial rabies transmission in the Northeast (Ma et al., 2020). Since its geographic expansion in the late 20th century, raccoon rabies has required sustained surveillance and control efforts, including large-scale oral rabies vaccine bait distribution programs coordinated by federal and state agencies (Slate et al., 2014). These programs aim to create immunologic barriers that prevent the westward and northward spread of the raccoon rabies variant.

Vermont lies within the raccoon rabies enzootic zone and participates in ORV bait drop initiatives coordinated with the U.S. Department of Agriculture (USDA Wildlife Services) and regional partners. Surveillance data consistently demonstrate raccoons as one of the most frequently reported rabid terrestrial species in the state. Although raccoon rabies is ecologically significant, its contribution to human rabies risk differs from its impact on wildlife surveillance trends.

Human rabies in the United States is rare, averaging one to three cases annually, but most cases in recent decades have been associated with bat variants of the rabies virus rather than raccoon

variants (Ma et al., 2020). This epidemiologic shift underscores the importance of distinguishing between wildlife reservoir prevalence and actual drivers of human exposure risk.

1.1.3 Bat-Associated Rabies and Human Risk

Since 2000, the majority of domestically acquired human rabies cases in the United States have been linked to bat-associated rabies virus variants (Ma et al., 2020). Notably, many of these cases involved with no recognized bite exposure, highlighting the phenomenon of “cryptic exposure” (De Serres et al., 2009). Bat bites may be minor and go unnoticed, and in some cases, individuals only recall finding a bat in a room where they were sleeping (CDC, 2024a).

The Advisory Committee on Immunization Practices (ACIP) provides detailed guidance on rabies post-exposure prophylaxis. ACIP recommends considering PEP not only after confirmed bites but also in situations where a bat is found in a room with a sleeping person, unattended child, or cognitively impaired individual and a bite cannot be definitively ruled out (Manning et al., 2022). These recommendations reflect the recognition that bat-associated exposures may be ambiguous yet potentially life-threatening.

This ambiguity introduces unique communication challenges. Unlike a clear dog bite event, bat exposures often involve uncertainty. Individuals must rapidly interpret whether an exposure may have occurred and decide whether to seek medical consultation. Research has shown that a misunderstanding of the risk of bat-associated rabies can lead to either delayed care or unnecessary PEP administration (De Serres et al., 2009; Ma et al., 2020). Thus, effective public health communication must address uncertainty, emphasize urgency without inducing panic, and provide clear decision-support guidance.

1.1.4 Post-Exposure Prophylaxis and Public Health Impact

Rabies post-exposure prophylaxis (PEP) in the United States consists of immediate wound cleansing, administration of human rabies immune globulin (HRIG), and a four-dose vaccine series for immunocompetent individuals (Manning et al., 2022). Rabies post-exposure prophylaxis is highly effective when administered promptly. However, treatment is costly and resource-intensive, with estimated direct medical costs per treatment course ranging from approximately \$1,038 to \$4,447 per patient (median \$3,356) in U.S. settings (Dhankhar et al., 2009). Consequently, public health agencies must balance ensuring timely access to life-saving prophylaxis while minimizing unnecessary treatment.

In states with endemic wildlife rabies, hundreds of individuals may receive PEP annually. Many of these cases involve bat exposures where the risk assessment is precautionary rather than definitive. Therefore, communication clarity directly influences both patient safety and public health resource allocation.

1.1.5 Risk Communication in Zoonotic and High-Consequence Diseases

Risk communication plays a critical role in zoonotic disease prevention and response. The CDC's Crisis and Emergency Risk Communication (CERC) framework emphasizes principles such as being first, being right, being credible, expressing empathy, promoting action, and showing respect (Reynolds & Seeger, 2005). Although rabies exposures do not always constitute a mass emergency, the need for rapid decision-making under uncertainty aligns with CERC principles.

The Health Belief Model (HBM) also provides a relevant theoretical framework. The HBM posits that individuals' health behaviors are influenced by perceived susceptibility, perceived severity, perceived benefits of action, and perceived barriers (Rosenstock et al., 1988). Rabies presents a paradox within this model: perceived severity is extremely high, but perceived susceptibility may be low or misunderstood, particularly in bat-associated exposures where contact is not obvious.

Health literacy further shapes outcomes. Clear, concise, and actionable messaging is associated with improved compliance in infectious disease response (Berkman et al., 2011). In time-sensitive conditions such as rabies exposure, complex or ambiguous messaging may delay action. Therefore, evaluating public-facing rabies communication materials through the lens of health literacy and behavioral theory is both academically justified and practically important.

1.1.6 Public Health Communication in the Context of Rabies

Previous literature has identified communication gaps related to rabies exposure recognition, particularly in bat encounters (De Serres et al., 2009). Studies suggest that members of the public may underestimate the risk associated with bats or misinterpret exposure scenarios. Conversely, overly broad messaging may result in unnecessary anxiety or medical visits.

State health departments serve as primary sources of rabies prevention information. Public-facing webpages, hotline guidance, and educational materials must strike a balance between ecological surveillance information and human exposure decision-making support. Evaluating whether messaging aligns proportionally with human exposure epidemiology—particularly bat-associated risk—is an important area of inquiry.

1.2 Motivation

Rabies remains endemic in Vermont's wildlife population, particularly among raccoons and other terrestrial mammals. Surveillance conducted by the Vermont Department of Health (VDH) demonstrates ongoing detection of rabid animals across multiple counties. In 2024, Vermont reported 66 confirmed rabid animals, including raccoons, skunks, foxes, bats, groundhogs, coyotes, dogs, and cats, representing a 74% increase from 2023 and a 69% increase above the fifteen-year average (VDH, 2025). These data indicate a significant resurgence of rabies activity statewide. Most confirmed cases occurred in wild animals, with geographic clustering observed in northern counties.

In the same year, 183 Vermonters received rabies postexposure prophylaxis (rPEP), with 58% of administrations associated with bat exposures (VDH, 2025). Updated surveillance and operational data from 2025 further reinforce these trends. In 2025, Vermont again reported 66 confirmed rabid animals, with nearly half (47%) identified in Orleans County. Health care providers reported 260 administrations of rabies postexposure prophylaxis (rPEP), of which 61% were associated with bat exposures (Vermont Department of Health [VDH], 2026a). Syndromic surveillance data from emergency departments and urgent care facilities identified substantially more initial rPEP encounters, with visits peaking in August 2025 and most commonly linked to bat exposures (VDH, 2026a). Concurrently, the Vermont Rabies Hotline received 2,160 requests for assistance in 2025—representing a 40% increase above the fifteen-year average—with bat-related concerns comprising a substantial proportion of disease-related calls (USDA APHIS Wildlife Services, 2026). These data underscore the sustained public health burden of bat-associated exposure scenarios and further support the importance of clear, proportionate, and action-oriented communication strategies.

This distribution mirrors national epidemiologic trends, in which bat-associated rabies virus variants account for the majority of domestically acquired human rabies cases in recent decades (Ma et al., 2020). Although terrestrial wildlife such as raccoons contribute substantially to animal rabies surveillance totals, bat exposures remain the predominant driver of human rabies risk. Bat encounters present unique communication challenges due to their often-ambiguous nature. Individuals may awaken to find a bat in a room, may not recall a bite, or may release the animal before consultation with public health authorities. Given the nearly universal fatality of untreated rabies and the time-sensitive effectiveness of rPEP, public-facing communication must support rapid, accurate, and proportionate decision-making. Clear guidance is particularly critical in scenarios where exposure risk is uncertain yet potentially life-threatening.

The VDH maintains comprehensive rabies prevention resources, including a public webpage, guidance documents, surveillance reports, 24/7 epidemiologist call availability, and a cooperative services agreement (CSA) with USDA-APHIS Wildlife Services to operate a rabies hotline to further support rabies exposure assessments in Vermont. However, given the resurgence of wildlife rabies activity and the predominance of bat-associated human exposures, opportunities may exist to refine communication emphasis further to align with epidemiologic patterns and behavioral decision-making needs. This practicum was motivated by the need to evaluate whether existing public-facing communication strategies proportionally emphasize bat-associated exposure risk and provide optimal clarity and actionability for Vermont residents.

1.3 Purpose

The purpose of this Integrative Learning Experience (ILE) was to systematically evaluate rabies communication strategies utilized by the VDH across public and clinical domains and to identify opportunities to strengthen clarity, consistency, proportional risk emphasis, and decision-support related to human rabies exposure. Particular attention was given to bat-associated exposure risk, given its epidemiologic significance in Vermont and nationally.

This evaluation focused on assessing the accuracy, risk communication effectiveness, terminology alignment, and actionability of existing materials. Findings from this review informed recommendations and guided the development of an evidence-based communication resource designed to enhance clinical exposure assessment and postexposure prophylaxis (PEP) decision-making within Vermont's rabies prevention system.

1.4 Location

This practicum was conducted in collaboration with the VDH, headquartered in Waterbury, Vermont. Vermont Department of Health serves a statewide population of approximately 650,000 residents and is responsible for protecting and promoting the health of Vermonters. The Department's mission emphasizes prevention, health equity, and evidence-based public health practice.

Rabies prevention activities are managed within the Infectious Disease Epidemiology Program, which oversees zoonotic disease surveillance, human exposure assessments, and coordination with other State agencies and departments, local Town Health Officers, health care facilities, and other partners. Vermont participates in interstate oral rabies vaccination bait programs conducted

by USDA-APHIS Wildlife Services to control raccoon rabies. The United States Department of Agriculture also maintains a public rabies hotline to support exposure consultations in Vermont.

The practicum activities were conducted under the supervision of my preceptor, Dr. Natalie Kwit, a state veterinarian, within the infectious disease epidemiology program. The project involved reviewing existing public-facing materials, surveillance reports, and guidance documents to assess communication alignment with current epidemiology and national recommendations.

The evaluation approach for this practicum was informed by principles outlined in the CDC Program Evaluation Framework (CDC, 2024). Although this project does not constitute a formal program evaluation, elements of the framework guided the structured review process.

Specifically, the evaluation assessed the context of Vermont's rabies epidemiology, described the communication components of the rabies prevention system, focused evaluation questions around clarity and proportional risk emphasis, gathered credible evidence through systematic document review, and generated actionable conclusions to inform communication improvements. This structured approach ensured that findings were relevant, transparent, and aligned with stakeholder needs within the Vermont Department of Health.

1.5 Analytical Questions

Guided by the epidemiologic context, theoretical frameworks, and communication challenges described above, this evaluation was structured around the following analytical questions. Each question was examined through structured document review using predefined evaluation criteria

informed by risk communication principles, health literacy standards, and the CDC Program Evaluation Framework (CDC, 2024).

1. To what extent do existing Vermont Department of Health rabies communication materials align with evidence-based risk communication principles, health literacy standards, and behavioral theory constructs?

This question was evaluated by assessing documents against predefined rubric domains, including clarity of messaging, risk communication tone, terminology consistency, audience alignment, and actionability. Alignment with principles derived from CERC, the Health Belief Model, and health literacy literature guided interpretation.

2. How effectively do current public-facing materials communicate bat-associated rabies exposure risk and recommended actions following potential exposure?

This question was evaluated through cross-document comparison of exposure definitions, specificity of recommended actions, proportional emphasis on bat-associated risk, and consistency between surveillance data and prevention messaging.

3. Do existing communication materials proportionally emphasize bat-associated human rabies risk relative to wildlife surveillance patterns and epidemiologic trends in Vermont?

This question was assessed by comparing epidemiologic data presented in surveillance reports with the prominence and framing of bat-related messaging across public-facing materials.

4. Where are the most significant gaps in clarity, consistency, and actionability within the current rabies communication system?

This question was addressed through iterative cross-document analysis to identify inconsistencies in terminology, reporting instructions, exposure definitions, and clinical guidance integration.

These four questions served as the conceptual framework for the structured evaluation conducted during this ILE report and informed the development of the evaluation rubric and resulting recommendations.

Chapter 2- Learning Objectives, Project Description, and Methods

2.1 Applied Practice Experience Overview

This ILE and accompanying report were conducted at the Vermont Department of Health, completed in April 2026, and totaled approximately 260 hours of field-based public health practice. Vermont State Public Health Veterinarian, Natalie Kwit, DVM, MPH, DACVPM, supervised the practicum.

The Vermont Department of Health oversees rabies surveillance, exposure management, laboratory coordination, wildlife rabies prevention efforts, and statewide public communication.

Rabies prevention requires coordinated messaging across multiple sectors, including public education, clinical guidance, animal control, laboratory testing, and surveillance systems.

This ILE focused on evaluating, organizing, and strengthening rabies-related communication materials used by the Vermont Department of Health. The project supported the VDH'S rabies prevention efforts by systematically reviewing educational materials, reporting tools, laboratory instructions, surveillance reports, and guidance to assess clarity, consistency, and communication effectiveness.

In addition to the epidemiologic context, this project examined how rabies information is communicated across the public health system and identified opportunities to enhance clarity, alignment, and practical usability of communication tools.

2.2 Objectives

The objectives of this report were developed in collaboration with the Vermont Department of Health and the supervising preceptor. Minor refinements were made to clarify the focus on communication systems analysis within the rabies program.

Objective 1

To identify, compile, and organize publicly available rabies-related communication materials developed by the Vermont Department of Health.

Objective 2

To evaluate the clarity, consistency, audience alignment, and risk communication strategies across rabies-related materials.

Objective 3

To identify strengths, inconsistencies, and opportunities for improvement within Vermont's rabies communication framework to enhance clarity, coordination, and public health messaging effectiveness.

These objectives support applied public health competencies in communication, systems thinking, program evaluation, and intersectoral coordination.

2.3 Methods & Activities

This section outlines the methods used to accomplish activities for each objective. The processes described below are presented in sufficient detail to allow replication by other public health agencies or future practicum students. Although this project did not constitute a formal program evaluation, elements of the CDC Framework provided structural guidance for the systematic review and synthesis process.

2.3.1 Identification and Collection of Materials

To meet Objective 1, rabies-related materials were systematically identified by reviewing publicly accessible Vermont Department of Health resources between January and April 2026.

Materials were located through:

- Review of the Vermont Department of Health Rabies webpage
- Downloading linked PDF documents
- Reviewing reporting forms associated with animal exposure and rabies testing
- Identifying wildlife rabies vaccine baiting program materials
- Compiling website content into a structured format

Inclusion criteria consisted of:

- Direct relevance to rabies prevention, control, surveillance, reporting, laboratory testing, or exposure management
- Public accessibility
- Vermont-specific applicability

Exclusion criteria included:

- National-level documents not specific to Vermont
- Historical materials no longer in use
- Internal department communications and documents that are not publicly available

Nine documents met the inclusion criteria and were included in the final review corpus. Among the clinical guidance materials, structured decision-support flowcharts titled *Management of*

Potential Human Exposures to Rabies, Management of Potential Bat-Related Rabies Exposures, and Management of Potential Pet Exposures to Rabies (Revised September 2018) were included in the document corpus. These algorithm-based tools provide stepwise exposure assessment and post-exposure prophylaxis (PEP) guidance for healthcare providers and were evaluated for terminology consistency, sequencing clarity, and alignment with related web-based and reporting materials.

During the review period (January–April 2026), the 2025 Rabies Surveillance Report and the 2025 Vermont Rabies Hotline Annual Report were published. Although these reports were not included in the original structured document corpus used for cross-document analysis, updated epidemiologic findings and operational data were incorporated into the contextual background and discussion sections of this report to ensure alignment with the most current surveillance trends.

2.3.2 Document Categorization

To support structured evaluation, materials were categorized into functional communication types:

1. Surveillance reporting (e.g., 2024 Rabies Surveillance Report)
2. Public education materials (e.g., Rabies Alert Poster, annual bait drop FAQs))
3. Clinical decision-support tools (e.g., rabies exposure assessment algorithms, post-exposure prophylaxis decision trees)
4. Laboratory and specimen submission instructions
5. Reporting and regulatory forms (e.g., Animal Bite Report Form, Rabies Postexposure Prophylaxis Reporting Form, Rabies Examination Request Form)

6. Website-based informational content

This categorization framework allowed assessment of communication flow across different levels of the rabies prevention system, including public, clinical, laboratory, surveillance, and policy domains.

2.3.3 Structured Document Review Process

To meet Objective 2, a structured qualitative review framework was developed to evaluate each document across multiple domains:

- Intended target audience
- Clarity of messaging
- Consistency of terminology across documents
- Risk communication tone
- Specificity of recommended actions
- Visual organization and accessibility
- Alignment between surveillance findings and prevention messaging

Each document was reviewed independently, and observations were recorded in a structured spreadsheet to allow systematic comparison. This structured approach enhanced consistency in evaluation and reduced subjective variability in interpretation.

Table 2.2 Document Review Criteria

<u>Evaluation Area</u>	<u>What Was Examined</u>
------------------------	--------------------------

Intended Audience	Who the document is designed for (e.g., public, clinicians, veterinarian, laboratory staff) and whether the language matches that audience
Clarity of Information	Whether key messages and recommended actions are clearly stated and easy to understand
Consistency of Terminology	Whether important terms (e.g., “rabies exposure,” reporting forms) are used consistently across documents
Risk Communication Tone	How risk and urgency are presented (e.g., reassuring, directive, urgent)
Specificity of Action Steps	Whether clear instructions are provided for reporting, testing, consultation, or treatment
Organization and Layout	Use of headings, bullet points, and formatting to improve readability
Alignment Across Materials	Whether messages are consistent between public-facing, clinical, and laboratory documents

These criteria were applied to each document included in the review. Using a structured set of evaluation areas helped ensure systematic comparison and reduced subjective interpretation during analysis.

2.3.4 Cross-Document Analysis and Gap Identification

To meet Objective 3, documents were analyzed collectively to identify patterns, redundancies, inconsistencies, and potential communication gaps. Particular attention was given to:

- Variability in exposure definitions

- Differences in action-step clarity
- Alignment between public-facing materials and clinical guidance
- Consistency in prevention messaging
- Opportunities to improve integration across communication levels

Themes were identified through iterative review and cross-document comparison. Findings informed recommendations and guided the development of a targeted communication product designed to address identified gaps within and veterinarian-facing materials. Updated 2025 surveillance data were subsequently examined to assess consistency between prior communication patterns and emerging epidemiologic trends.

2.3.5 Development of Provider Quick-Reference Guide

Based on themes identified through cross-document analysis, a concise provider-focused rabies exposure and postexposure prophylaxis (PEP) quick-reference guide was developed to enhance clarity in clinical decision-making and reporting procedures. Analysis revealed variability in exposure definitions, action-step specificity, and integration between reporting requirements and clinical guidance materials.

Content for the guide was synthesized from existing Vermont Department of Health rabies materials, including clinical guidance documents, reporting forms, and laboratory submission instructions, to ensure consistency with established state protocols. The guide was structured using health literacy principles, emphasizing concise language, clear headings, and action-oriented bullet points to support rapid clinical use.

Draft iterations were reviewed in consultation with the supervising preceptor to ensure clinical accuracy, regulatory alignment, and practical applicability within Vermont's healthcare settings. The final product serves as a supplementary communication tool intended to streamline exposure assessment, reinforce reporting compliance, and support appropriate PEP decision-making. The development of the provider quick-reference guide was informed by consultation with the supervising preceptor to ensure alignment with the needs of stakeholders, including clinicians, veterinarians, Town Health Officers, and public health program staff.

Vermont Rabies Communication System Framework

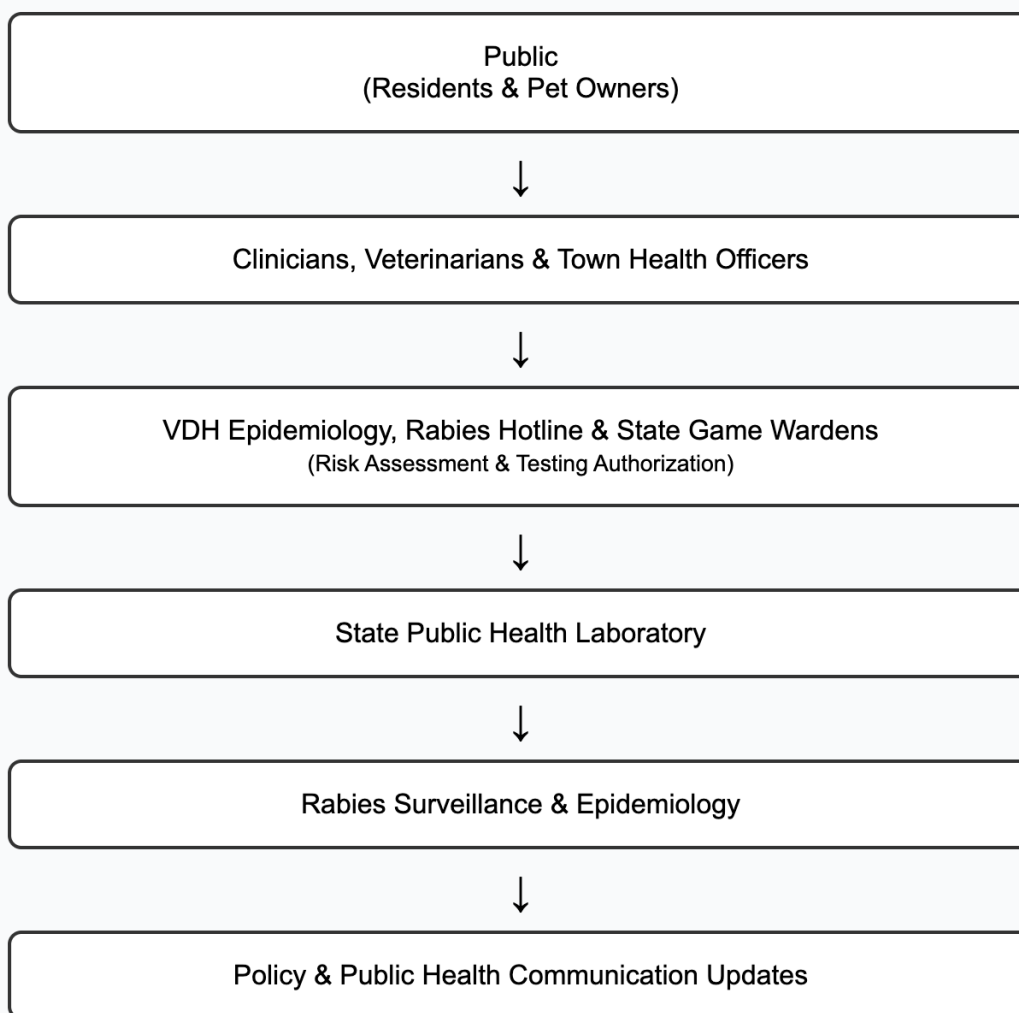


Figure 2.1. Vermont Rabies Communication System Framework.

This systems-based framework illustrates the operational flow of rabies exposure assessment, risk consultation, testing authorization, laboratory confirmation, surveillance analysis, and policy communication within Vermont’s public health infrastructure. Exposure events originate at the community level and are evaluated by clinicians, veterinarians, and town health officers. Risk assessments and testing authorization are coordinated by VDH Epidemiology, the Rabies Hotline, and State Game Wardens prior to specimen submission to the State Public Health

Laboratory. Laboratory-confirmed cases inform statewide rabies surveillance and epidemiologic monitoring, which guide policy updates and prevention messaging disseminated back to healthcare providers and the public. This framework served as the structural basis for document categorization and cross-level communication analysis conducted in this Applied Practice Experience.

To operationalize the communication framework illustrated in Figure 2.1, specific rabies-related materials were identified and categorized according to their functional role within the system. Each document represents a communication component situated at a particular level of the framework, including public education, clinical guidance, laboratory coordination, surveillance reporting, and regulatory documentation. Table 2.1 summarizes the materials included in this review, along with their intended audience, document type, and role within the broader rabies communication infrastructure.

Table 2.1 Rabies Communication Materials Included in ILE Report

Document	Audience	Type	Role in Communication System
2024 Rabies Surveillance Report	Public; Health Professionals	Surveillance Report	Surveillance communication
Rabies Alert Poster	General Public	Poster	Prevention messaging
Vermont Rabies Control Resource Manual	veterinarians, wildlife officials, health care and public health professionals	Resource Guide	Rabies prevention guidance and regulatory reference

Rabies Exposure Assessment Flow Charts	veterinarians, wildlife officials, health care and public health professionals	Technical Guidance	Rabies prevention decision support
Animal Bite Report Form	Town Health Officers	Reporting Form	Exposure reporting
Rabies Postexposure Prophylaxis Report Form	Clinicians, veterinarians, Game Wardens; Laboratory Staff	Reporting Form	Treatment monitoring
Rabies Examination Request Form	Clinicians; Laboratory Staff	Submission Form	Diagnostic testing
Vermont Rabies Website Content	General Public	Web-Based Content	Public information
Management of Potential Human, Bat-Related, and Pet Exposures to Rabies (Revised September 2018)	Healthcare Providers	Clinical Decision- Support Flowchart (PDF)	Exposure classification and PEP decision guidance

Table 2.1 demonstrates the diversity of communication materials that support rabies prevention and response activities in Vermont. The documents span multiple levels of the public health system, including public education resources, exposure decision support materials, laboratory coordination documents, surveillance reporting outputs, and regulatory reporting forms. The distribution of materials reflects a multi-layered communication infrastructure in which information is tailored to distinct audiences while contributing to a coordinated statewide response. Public-facing materials emphasize prevention and risk awareness, whereas clinician- and veterinarian- and laboratory-focused documents prioritize exposure assessment and postexposure support, and animal bite, PEP, and suspect case reporting. Together, these materials illustrate the integrated and system-based nature of rabies communication within the Vermont Department of Health. In addition to evaluating existing materials, this Applied Practice Experience incorporated the development of enhanced provider-focused communication resources informed by the structured document review and cross-document analysis. Identified gaps in clarity, terminology alignment, and action-step specificity guided the creation of materials designed to support healthcare providers in rabies exposure assessment and postexposure prophylaxis decision-making. The development process involved iterative drafting and consultation with the supervising preceptor to ensure clinical accuracy and alignment with Vermont Department of Health protocols.

Chapter 3 – Products and Results

3.1 Overview of Reviewed Materials

A total of nine publicly accessible rabies-related communication materials produced by the Vermont Department of Health were included in the structured review. These materials represented multiple functional domains within the rabies prevention system, including public education resources, clinical guidance documents, laboratory coordination instructions, surveillance reports, and regulatory reporting forms. Collectively, the materials spanned both public-facing and clinician- and veterinarian-facing audiences, allowing assessment of communication alignment across system levels. A complete inventory of reviewed materials, including document type, intended audience, access URL, and review period, is provided in Appendix 1.

3.2 Findings by Analytical Question

3.2.1 Alignment with Risk Communication and Health Literacy Principles

Review of the included materials demonstrated overall clarity in purpose and audience targeting. Public-facing resources generally used accessible language and prominently displayed contact information for consultation. Clinical guidance materials provided detailed procedural instructions and regulatory references.

However, variability was observed in terminology use across documents, particularly in definitions of “rabies exposure” and reporting requirements. Differences in formatting,

organization, and level of detail affected consistency across materials. In several instances, recommended actions were described but not presented in a clearly sequential or action-oriented format.

While individual documents demonstrated elements consistent with evidence-based risk communication and health literacy principles, cross-document alignment was inconsistent. Opportunities exist to strengthen terminology standardization and improve clarity of action steps across communication levels.

3.2.2 Communication of Bat-Associated Exposure Risk

Bat-associated rabies exposure was addressed across multiple public-facing materials; however, the specificity of guidance varied. Some documents clearly described high-risk scenarios, including situations involving sleeping individuals, unattended children, or cognitively impaired persons. Other materials referenced bat encounters more generally without a detailed explanation of ambiguous exposure scenarios.

Clarity of recommended actions also varied. Certain documents explicitly directed individuals to contact the rabies hotline or seek medical consultation immediately, while others emphasized prevention messaging without clear procedural guidance following potential exposure.

These findings indicate that bat-associated risk is acknowledged within Vermont's rabies communication system but could benefit from greater consistency in exposure definitions and action-step specificity. Updated 2025 epidemiologic data further reinforce the public health importance of bat-associated exposure scenarios. In 2025, health care providers reported 260 administrations of rabies postexposure prophylaxis (rPEP), with 61% associated with bat

exposures. Syndromic surveillance data identified substantially more emergency department and urgent care encounters related to rPEP, with a seasonal peak in August 2025 driven largely by bat-related exposures (Vermont Department of Health [VDH], 2026a). Although bats accounted for a small proportion of confirmed rabid animals, they represented the predominant driver of human exposure management. These data underscore the need for consistent, clearly defined bat exposure criteria and streamlined action steps within both public-facing and clinician-directed materials.

3.2.3 Proportional Emphasis of Human Exposure Risk

Comparison of how surveillance findings were translated into public-facing messaging revealed differences in emphasis between wildlife case counts and human exposure risk drivers.

Surveillance reports prominently detailed terrestrial wildlife infections, particularly raccoon cases, reflecting ecological monitoring priorities. Bat-associated human exposure risk was discussed primarily within exposure guidance materials rather than surveillance summaries.

Although this distribution aligns with the functional purpose of surveillance reporting, integration between epidemiologic context and human exposure messaging varied across materials. Explicit linkage between wildlife surveillance trends and actionable human exposure guidance was inconsistently presented across materials. These findings suggest opportunities to strengthen proportional alignment between epidemiologic trends and prevention messaging in public-facing materials. Recent surveillance findings illustrate this proportional misalignment. In 2025, raccoons accounted for the majority of confirmed rabid animals in Vermont; however, bat exposures accounted for the majority of reported rPEP administrations and emergency department visits related to rabies prevention (VDH, 2026a). Concurrently, the Vermont Rabies

Hotline received 2,160 calls in 2025—40% above the fifteen-year average—with bat-related concerns comprising a substantial proportion of disease-focused inquiries (United States Department of Agriculture [USDA], 2026). This contrast between wildlife case distribution and human exposure drivers highlights the importance of integrating epidemiologic context with prevention messaging to ensure proportional emphasis aligns with actual human risk.

3.2.4 Communication Gaps Identified

Cross-document analysis identified several recurring communication gaps. Inconsistencies were observed in terminology, exposure classification, and procedural sequencing across public-facing, clinical, and regulatory materials. The exposure management flowcharts provide detailed algorithm-based decision pathways for human, bat-related, and pet exposures; however, these tools function independently from web-based guidance, laboratory submission instructions, and reporting forms. Terminology and phrasing within the flowcharts were not always identical to the language used on the website, and certain consultation and reporting steps required cross-referencing separate documents. In time-sensitive clinical scenarios, this structural separation may increase cognitive load despite the technical accuracy of individual tools. Definitions of “rabies exposure” and reporting triggers were not consistently phrased between documents, and recommended actions varied in level of specificity.

Gaps in terminology clarity were noted in the use of key exposure-related phrases without explicit definitions. Variability between public and clinician-focused language may introduce ambiguity in uncertain scenarios involving bat-associated exposure.

Navigation and accessibility barriers were also identified within web-based materials. Bat exposure guidance and recommended actions were not consistently consolidated, requiring users

to navigate multiple pages to locate complete information. Differences in document formatting and visual organization may affect rapid information retrieval in time-sensitive contexts.

These findings informed the development of a targeted provider-focused communication resource designed to enhance clarity, standardization, and usability. Table 3.1 summarizes key strengths and improvement opportunities identified across reviewed materials, including document-level examples to illustrate cross-system variability.

Table 3.1 Summary of Key Communication Findings with Document-Level Examples

Analytical Area	Documents Reviewed	Strengths Observed	Areas for Improvement Identified
Risk Communication Alignment	Website content; Rabies Control Resource Manual; Rabies Alert Poster	Website and poster used accessible language; Manual provided detailed procedural guidance	Differences in order of recommended actions (e.g., website advises contacting the rabies hotline immediately following bat encounters, while the Manual first presents exposure classification before consultation guidance); inconsistent phrasing of reporting triggers (e.g., “report animal bites” on reporting forms vs. “report potential rabies exposures” in clinical guidance).

Bat-Associated Exposure Messaging	Website content; Rabies Control Resource Manual; 2024 Surveillance Report.	Manual described high-risk bat scenarios (e.g., sleeping individual); Website acknowledged bat exposure risk	Website provided general bat avoidance guidance (e.g., “avoid contact and seek consultation”) without consistently detailing ambiguous exposure scenarios such as a bat found in a room with a sleeping person or unattended child, which are more explicitly described in the Manual and exposure flowcharts.
Proportional Risk Emphasis	2024 Surveillance Report; Website content; Wildlife Baiting Materials	2024 Surveillance Report; Website content; Wildlife Baiting Materials	Bat-associated human exposure risk not proportionally emphasized within surveillance summaries; linkage between wildlife trends and human risk guidance limited
Terminology and Definitions	Website content; Animal Bite Report Form; Rabies PEP Reporting Form	Core rabies terminology consistently referenced	Variability in terminology (e.g., reporting forms reference “animal bites,” whereas exposure flowcharts reference broader “potential rabies

			exposures,” which include non-bite bat encounters).
Navigation and Accessibility	Website content; Laboratory Submission Instructions.	Information publicly accessible; documents downloadable	Bat exposure guidance required navigation across multiple webpages; clinical and reporting information housed in separate documents without cross-referencing; formatting differences may delay retrieval.

These structured findings informed the development of the provider quick-reference guide described in Section 3.3.

3.3 Development of Provider Quick-Reference Guide

In response to the communication gaps identified through structured review, a concise provider-focused rabies exposure and post-exposure prophylaxis (PEP) quick-reference guide was developed. The design of the guide directly addressed areas of inconsistency, terminology variability, and navigation barriers identified across existing materials.

To address cross-document inconsistencies in exposure classification and procedural sequencing, the guide consolidates exposure definitions and presents recommended actions in a clearly ordered, stepwise format. This structure standardizes clinical decision flow and reduces variability in interpretation across materials.

To resolve terminology clarity gaps, key terms such as “rabies exposure,” “bat-associated exposure,” and “reportable event” are explicitly defined within the guide. Definitions were

harmonized using language consistent with Vermont Department of Health protocols to improve cross-document alignment.

To improve navigation and accessibility, the guide integrates previously dispersed information—including exposure assessment criteria, wound management steps, reporting requirements, and contact information—into a single, streamlined document. Bullet-point formatting, section headers, and visual hierarchy were used to support rapid retrieval of critical information in time-sensitive clinical scenarios.

To strengthen proportional emphasis on bat-associated human exposure risk, bat-specific exposure scenarios were prominently positioned within the exposure assessment section, reflecting their epidemiologic significance in Vermont.

Draft iterations were reviewed in consultation with the supervising preceptor to ensure clinical accuracy, regulatory compliance, and alignment with existing state protocols. The final product serves as a supplementary decision-support tool intended to enhance clarity, consistency, and usability within Vermont's rabies prevention system. The completed guide is included in Appendix 2. The sustained volume of rabies-related consultations and rPEP administrations observed in 2025 further underscores the practical necessity of streamlined clinical decision-support tools. With 260 provider-reported rPEP administrations and a seasonal peak in bat-associated exposures, healthcare providers across care settings conduct time-sensitive exposure assessments requiring rapid interpretation of state guidance (VDH, 2026a). While emergency departments are the primary care settings that stock and administer human rabies immune globulin (HRIG) and initiate rPEP, other clinical settings frequently perform initial exposure evaluations and coordinate referral for treatment when indicated. By consolidating exposure definitions, bat-specific criteria, reporting triggers, and consultation pathways into a single

resource, the provider's "quick" guide directly addresses the cognitive and workflow demands demonstrated by recent epidemiologic and operational trends.

Collectively, these findings demonstrate that, while Vermont's rabies communication system is comprehensive and functionally robust, targeted refinements in terminology alignment, action-step clarity, and cross-level integration may enhance usability and the proportional emphasis on risk within time-sensitive exposure scenarios.

Chapter 4 – Discussion

4.1 Interpretation of Findings in Relation to Objectives

This Integrative Learning Experience evaluated the clarity, consistency, proportional risk emphasis, and actionability of rabies-related communication materials used by the Vermont Department of Health (VDH). Guided by principles from the CDC Program Evaluation Framework (CDC, 2024), health literacy theory, and behavioral models, this project examined how rabies communication functions across public and clinical domains within a wildlife-endemic state.

Findings indicate that Vermont’s rabies communication system is comprehensive, publicly accessible, and operationally robust. Materials addressing surveillance, public education, clinical management, laboratory coordination, and reporting requirements reflect a well-established prevention infrastructure. Individual documents generally demonstrated clear audience targeting and accurate public health guidance.

However, cross-document analysis revealed opportunities to strengthen terminology standardization, exposure definition consistency, and procedural sequencing across materials. Most notably, while clinical guidance exists within manuals, reporting forms, and web-based resources, no single consolidated, action-oriented healthcare provider guide was available. Clinical audience information relevant to exposure assessment and post-exposure prophylaxis (PEP) decision-making was dispersed across multiple documents. Although structured exposure management flowcharts exist and provide clear decision trees, they operate separately from reporting forms, laboratory coordination documents, and consultation guidance. This separation

reinforces the need for a consolidated, quick-reference tool that integrates exposure classification with reporting and workflow processes. In time-sensitive or ambiguous exposure scenarios—particularly those involving bat encounters—this fragmentation may increase cognitive burden and reduce efficiency in clinical workflow.

The absence of a centralized provider reference tool represented a functional systems gap rather than a content deficiency. Updated 2025 surveillance and operational data further contextualize this systems gap. These converging data sources reinforce that communication clarity is not merely an informational concern but an operational necessity within a high-consequence, time-sensitive prevention system. Although accurate and comprehensive, dispersion across formats may limit rapid usability. In response to this identified gap, this project developed a standardized provider quick-reference guide aligned with existing state protocols to enhance clarity, terminology consistency, and streamlined access to critical decision-support information.

These findings directly addressed the stated objectives of this evaluation. Materials were systematically identified and categorized; clarity and cross-document consistency were assessed; and a targeted product was developed to strengthen communication alignment within Vermont’s rabies prevention system.

4.2 Contribution to Understanding Rabies Risk Communication

Rabies presents a unique communication challenge: perceived severity is extremely high, yet perceived susceptibility may be uncertain, especially in bat-associated exposure scenarios. The Health Belief Model suggests that health behavior decisions are influenced by perceived severity, susceptibility, benefits, and barriers (Rosenstock et al., 1988). In rabies prevention,

ambiguous bat exposures complicate assessments of susceptibility despite the near-universal fatality of untreated disease.

Crisis and Emergency Risk Communication (CERC) principles emphasize clarity, credibility, and actionable guidance in situations requiring rapid decision-making (Reynolds & Seeger, 2005). Although rabies exposures do not constitute emergencies, they are high-consequence events that demand prompt and confident public health and clinical action.

This evaluation contributes to existing literature by shifting focus from individual document clarity to cross-system communication alignment. While Vermont's materials are individually sound, variability in terminology and procedural framing across public and clinical documents may introduce interpretation variability. The lack of a consolidated healthcare provider guide further highlights how even well-developed communication systems can benefit from usability-oriented refinement.

Additionally, national epidemiologic data demonstrate that bat-associated rabies virus variants account for the majority of domestically acquired human rabies cases in recent decades (Ma et al., 2020). Ensuring proportional emphasis of bat exposure risk within both public and clinical materials is therefore essential, while ruling out the need for expensive administration of rabies biologics. By identifying areas where epidemiologic context and clinical guidance could be more tightly integrated, this project advances understanding of how communication infrastructure supports zoonotic disease prevention.

4.3 Public Health Practice Implications

The implications of this evaluation extend beyond document formatting to the functioning of public health systems. Rabies prevention depends on timely exposure recognition, accurate risk assessment, and prompt initiation of PEP when indicated. Communication systems must therefore support rapid comprehension and consistent terminology across audiences. Recent epidemiologic and operational trends demonstrate the practical implications of communication efficiency. In 2025, bat-associated exposures accounted for 61% of provider-reported rPEP administrations and were the leading driver of emergency department visits related to rabies prevention, with a pronounced seasonal peak in August (VDH, 2026a). At the same time, the Vermont Rabies Hotline experienced call volumes 40% above the fifteen-year average, with disease-related and bat-associated concerns comprising the majority of inquiries (USDA, 2026). These patterns illustrate how ambiguous exposure scenarios—particularly those involving bats—generate substantial clinical, public health, and consultation workload. In this context, variability in terminology, exposure classification, or procedural sequencing may contribute to delays, inefficiencies, or inconsistent decision-making. Strengthening communication alignment across public and clinical domains, therefore, represents a systems-level intervention aimed at improving timeliness, reducing cognitive burden, and reinforcing appropriate PEP utilization.

The absence of a consolidated healthcare provider guide represented a practical systems-level gap. Although VDH provides comprehensive exposure risk assessment information, its distribution across multiple documents may require clinicians and veterinarians to consult several sources when evaluating exposure scenarios. In urgent or ambiguous scenarios—

particularly involving bat exposures—streamlined access to standardized definitions and procedural steps is critical.

The provider’s quick-reference guide, developed through this project, addresses this gap by consolidating:

- Exposure definitions
- Bat-associated exposure criteria
- Reporting requirements
- Consultation processes
- PEP decision-support information

The sustained rPEP volume observed in 2025 further underscores the importance of this tool. During periods of increased bat activity and peak exposure season, clinicians and veterinarians may face repeated, time-sensitive exposure assessments. A consolidated, action-oriented reference may support more efficient navigation of exposure definitions, consultation triggers, and reporting requirements during high-demand intervals. By reducing fragmentation across documents, the guide aligns communication infrastructure with demonstrated epidemiologic and operational realities. This tool strengthens alignment across communication domains without requiring structural changes to the existing rabies program. By enhancing usability and reducing cognitive load, the guide may support more efficient clinical decision-making and improved reporting compliance.

More broadly, this project demonstrates the value of incorporating structured communication review into routine public health practice. Applying elements of the CDC Program Evaluation

Framework (CDC, 2024) to communication systems—not solely to program outcomes—illustrates how evaluation principles can strengthen informational infrastructure in wildlife-endemic states.

4.4 Recommendations

Based on the findings of this evaluation, several recommendations are proposed to strengthen the rabies communication infrastructure at multiple levels.

Individual Level

- Maintain clear, action-oriented guidance for the public, particularly regarding bat encounters.
- Ensure continued visibility of consultation resources, including the Vermont USDA Rabies Hotline.

Institutional Level

- Adopt and disseminate the provider quick-reference guide within Vermont healthcare settings.
- Standardize terminology across materials by adopting “potential rabies exposure” as the default term (inclusive of bites, scratches, mucous membrane contact, and bat-associated non-bite scenarios) and ensuring consistent alignment with Advisory Committee on Immunization Practices (ACIP) informed state definitions.
- Conduct periodic cross-document communication reviews to ensure continued alignment.
- Improve cross-referencing and navigation between public and clinical resources.

Policy and Systems Level

- Integrate communication system audits into routine rabies program evaluation cycles.
- Align document updates with CDC evaluation principles to ensure consistency and transparency.
- Consider formal usability testing of the provider guide to assess workflow integration and real-world effectiveness.

4.5 Sustainability Considerations

Several facilitators support the sustainability of communication refinement efforts within VDH, including established surveillance systems, an operational consultation hotline, experienced program leadership, and comprehensive baseline materials. The provider's quick-reference guide builds upon existing content rather than replacing it, increasing the feasibility of long-term adoption.

Potential barriers include resource constraints, competing public health priorities, and the need for coordinated updates across multiple documents to maintain terminology consistency.

Embedding communication review into routine program processes may enhance sustainability and prevent future fragmentation.

4.6 Strengths and Limitations

This Applied Practice Experience has several strengths. A structured qualitative review framework enhanced systematic comparison across documents and minimized subjective bias.

Transparent inclusion criteria and cross-domain categorization strengthened methodological

clarity. Importantly, this project moved beyond descriptive analysis to identify a concrete systems gap and develop a practical, implementable solution.

Several limitations should be acknowledged. The evaluation was limited to publicly accessible materials and did not include internal communications or stakeholder interviews. The evaluation also did not include direct assessment of healthcare provider usability or workflow integration of existing exposure management flowcharts. No formal usability testing was conducted for the newly developed provider guide. Additionally, this project did not quantitatively assess PEP utilization patterns or behavioral outcomes. Future work incorporating clinician and veterinarian feedback would strengthen the understanding of the guide's applied impact.

4.7 Future Directions

This evaluation raises several areas for further inquiry. How do clinicians and veterinarians currently navigate dispersed rabies guidance materials in practice? Does the introduction of a consolidated provider guide improve efficiency, clarity, or confidence in exposure assessment? Would terminology standardization influence the timeliness or appropriateness of PEP administration? Future evaluation efforts could examine patterns of rPEP administration and rabies hotline utilization before and after dissemination of the provider quick-reference guide. Given the elevated rPEP volume observed in 2025, assessing whether streamlined clinical guidance improves workflow efficiency, consultation timeliness, or documentation consistency would provide valuable implementation insight. Integration of surveillance, hotline, and syndromic data streams may further support real-time communication system refinement in response to emerging epidemiologic trends.

Future research could include stakeholder interviews, usability testing, and evaluation of PEP decision patterns before and after implementation of the provider guide. Expanding evaluation to include multilingual accessibility and equity considerations may further strengthen inclusivity within Vermont's rabies prevention system.

4.8 Conclusion

This Integrative Learning Experience demonstrates that Vermont's rabies communication system is comprehensive and functionally strong. However, the absence of a consolidated healthcare provider guide represented a practical systems-level gap within an otherwise robust infrastructure. In addition, a review of public-facing bat guidance materials identified opportunities for refinement in terminology alignment and clarity of ambiguous exposure scenarios. By identifying these gaps and developing standardized provider and public-facing decision-support tools aligned with state protocols, this project contributes both evaluative insight and actionable improvement.

Targeted refinements in terminology alignment, procedural clarity, and proportional risk emphasis can further enhance decision-making within high-consequence exposure scenarios. Strengthening cross-level communication alignment supports efficient clinical practice, reinforces appropriate PEP utilization, and advances the foundational public health principle that clear, consistent, and actionable messaging is essential in preventing life-threatening disease.

Chapter 5 - Competencies

1. Synthesis and/or Integration of Competencies

The Integrative Learning Experience (ILE) demonstrates synthesis and integration of both MPH Foundational and Infectious Disease and Zoonoses (IDZ) emphasis area competencies. Across coursework, the Applied Practice Experience (APE), surveillance analysis, communication system evaluation, and development of a provider-focused decision-support tool, I analyzed epidemiologic data, evaluated communication infrastructure, and synthesized pathogen biology with applied public health practice. This integration required analysis, synthesis, and evaluation across epidemiologic, communication, and systems domains. The competencies below reflect integration across the entire experience, not limited to individual products.

Table 5.1 Synthesis and Integration of Competencies

Competency	Description of Synthesis and Integration
MPH Foundational #1 – Apply epidemiological methods to settings and situations in public health practice	I analyzed rabies surveillance data, categorized exposure types, examined temporal and seasonal trends, and interpreted rPEP utilization patterns to evaluate zoonotic transmission risk within Vermont. I integrated descriptive epidemiology, infectious disease principles, and operational data to inform communication refinement and exposure classification.
MPH Foundational	I designed and implemented a structured qualitative document review framework informed by the CDC Program Evaluation

Competency	Description of Synthesis and Integration
#11 – Select methods to evaluate public health programs	Framework. I evaluated terminology consistency, risk framing, action-step clarity, and cross-document alignment, and synthesized findings to identify system-level communication gaps.
IDZ Emphasis #1 – Pathogens/pathogenic mechanisms	I analyzed rabies virus transmission pathways, differentiated bite and non-bite exposures, and synthesized viral pathogenesis principles into risk-stratified exposure categories. I integrated pathogen biology with surveillance trends to construct evidence-based clinical exposure guidance.

Foundational Competency #1

Apply epidemiological methods to settings and situations in public health practice

Across the ILE, I applied, analyzed, and interpreted rabies surveillance and operational datasets to evaluate zoonotic exposure risk in Vermont. I categorized confirmed rabies cases by reservoir species, exposure mechanism, and geographic distribution. I examined seasonal trends in rPEP administration and interpreted hotline consultation patterns to identify dominant exposure drivers, particularly bat-associated encounters.

Rather than describing surveillance findings in isolation, I synthesized epidemiologic data with communication system evaluation to assess whether prevention messaging proportionally reflected actual human risk patterns. I integrated descriptive epidemiology with applied systems

analysis to inform communication refinement. This demonstrates higher-level application, analysis, and synthesis of epidemiologic methods within an operational public health setting.

Foundational Competency #11

Select methods to evaluate public health programs

I designed and implemented a structured evaluation framework to systematically review Vermont's rabies communication materials. Drawing upon the CDC Program Evaluation Framework, I selected evaluation domains, constructed predefined review criteria, and categorized documents by communication function (public, clinical, laboratory, regulatory).

I analyzed cross-document terminology variability, compared exposure definitions, examined sequencing of action steps, and evaluated proportional risk emphasis. I synthesized findings across materials to identify a systems-level usability gap: the absence of a consolidated provider decision-support tool.

This competency was integrated throughout the entire ILE, from analytic question development through gap identification and recommendation formulation. The evaluation was not descriptive; it required analysis, comparison, differentiation, and synthesis at the systems level.

IDZ Emphasis Area Competency #1

Pathogens/pathogenic mechanisms – Evaluate modes of disease causation of infectious agents

Rabies exposure classification required the application of viral pathogenesis and transmission dynamics. I analyzed mechanisms of rabies virus transmission (bite, mucosal, and ambiguous bat exposure), examined neurotropic progression and incubation variability, and differentiated exposure categories based on biologic plausibility.

I synthesized pathogen biology with epidemiologic surveillance trends to construct risk-stratified exposure classifications. This integration ensured that communication refinement and provider guidance were biologically grounded and evidence-based.

By linking pathogen mechanisms to applied exposure management recommendations, I demonstrated the synthesis of infectious disease science with public health decision-making infrastructure.

Table 5.2 MPH Foundational Competencies and Courses Taught In

22 Public Health Foundational Competencies	MPH	MPH	MPH	MPH	MPH
Course Mapping	701	720	754	802	818
Evidence-based Approaches to Public Health					
1. Apply epidemiological methods to the breadth of settings and situations in public health practice.	x		x		
2. Select quantitative and qualitative data collection methods appropriate for a given public health context.	x	x	x		
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate.	x	x	x		
4. Interpret results of data analysis for public health research, policy or practice.	x		x		

Public Health and Health Care Systems					
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings.		x			
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels.					x
Planning and Management to Promote Health					
7. Assess population needs, assets and capacities that affect communities' health.		x		x	
8. Apply awareness of cultural values and practices to the design, implementation, or critique of public health policies or program					x
9. Design a population-based policy, program, project or intervention			x		
10. Explain basic principles and tools of budget and resource management		x	x		
11. Select methods to evaluate public health programs	x	x	x		
Policy in Public Health					
12. Discuss the policy-making process, including the roles of ethics and evidence		x	x	x	

13. Propose strategies to identify relevant communities and individuals and build coalitions and partnerships for influencing public health outcomes		x		x	
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations		x			x
15. Evaluate policies for their impact on public health and health equity		x		x	
Leadership					
16. Apply leadership and/or management principles to address a relevant issue		x			x
17. Apply negotiation and mediation skills to address organizational or community challenges		x			
Communication					
18. Select communication strategies for different audiences and sectors	DMP 815				
19. Communicate audience-appropriate public health content, both in writing and through oral presentation to a non-academic, non-peer audience with attention to factors such as literacy and health literacy	DMP 815				
20. Describe the importance of cultural humility in communicating public health content		x			x
Interprofessional Practice					

21. Integrate perspectives from other sectors and/or professions to promote and advance population health		x			x
Systems Thinking					
22. Apply a systems thinking tool to visually represent a public health issue in a format other than a standard narrative			x	x	

2. Demonstration of Competency Attainment

This section describes how two specific products demonstrated or applied selected competencies:

1. PEP Provider Quick-Reference Guide and Rabies Bat Exposure
2. VDH Professional Oral PowerPoint Presentation

Table 5.3 Practice-Based Products that Demonstrate Competency Attainment

Specific Products	Competency
Provider Quick-Reference Guide	Foundational #1 – Apply epidemiological methods
Oral Presentation with PowerPoint Slides	Foundational #11 – Select methods to evaluate public health programs
Oral Presentation with PowerPoint Slides	Foundational #19 – Communicate audience-appropriate public health content
Provider Quick-Reference Guide	IDZ #1 – Pathogens/pathogenic mechanisms
Bat Exposure Reference Guide	IDZ #4 – Disease surveillance

Foundational Competency #1

Demonstrated through: Provider Quick-Reference Guide

Within the Provider Quick-Reference Guide, I structured exposure categories according to epidemiologic risk stratification derived from surveillance trends. The guide organizes bite, non-bite, and bat-associated exposures based on reservoir-specific data and seasonal utilization

patterns, demonstrating application of descriptive epidemiology to clinical decision pathways. The guide demonstrates application and synthesis of epidemiologic reasoning into a practical decision-support tool used in real-world public health settings.

Foundational Competency #11

Demonstrated through: Oral PowerPoint Presentation

Within the Oral PowerPoint Presentation, I appraised Vermont's rabies communication materials using predefined evaluation domains derived from the CDC Program Evaluation Framework. I compared document terminology, analyzed cross-level alignment, and justified methodological decisions to determine areas of inconsistency. The presentation demonstrates evaluation-level reasoning through systematic assessment of communication infrastructure against explicit criteria.

Foundational Competency #19

Demonstrated through: Oral PowerPoint Presentation

In my Presentation for VDH, I organized and synthesized surveillance findings into structured slides that used visual hierarchy, concise language, and clearly defined terminology appropriate for an academic and professional audience. I translated complex epidemiologic analyses into summarized visual displays and structured narrative explanations to facilitate comprehension and professional discussion.

IDZ Competency #1 – Pathogens/pathogenic mechanisms

Demonstrated through: Provider Quick-Reference Guide

The Provider Quick-Reference Guide differentiates bite, mucosal, and ambiguous bat-associated exposures according to rabies virus transmission dynamics and neurotropic pathogenesis.

Exposure categories and PEP recommendations are structured to reflect biologic plausibility, incubation variability, and documented transmission pathways. The guide operationalizes pathogen biology into applied clinical exposure management.

IDZ Competency #4 – Disease Surveillance

Demonstrated through: Provider Quick-Reference Guide

The structure of the Provider Quick-Reference Guide reflects direct integration of rabies surveillance findings. Exposure categories are prioritized according to documented reservoir distribution and bat-associated exposure prevalence in Vermont. By aligning proportional emphasis within the guide to observed surveillance trends, the product demonstrates an applied interpretation of disease surveillance data to support clinical decision-making

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Appendixes

Appendix 1 - Inventory of Reviewed Rabies Communication Materials

The materials listed below were identified through a systematic review of publicly accessible rabies-related resources available on the Vermont Department of Health website between January and April 2026.

Document Title	Document Type	Intended Audience	Access URL	Date Reviewed
Rabies – Vermont Department of Health (Primary Rabies Information Page)	Website (Public Education and Provider Resources)	General Public; Healthcare Providers	https://www.healthvermont.gov/disease-control/zoonotic-diseases/rabies	January–April 2026
Rabies Control Resource Manual	Clinical Guidance Manual (PDF)	Healthcare Providers	https://www.healthvermont.gov/sites/default/files/documents/pdf/HS_ID_RabiesControlResourceManual.pdf	January–April 2026

Rabies Alert Poster	Educational Poster (PDF)	General Public; Healthcare Providers	https://www.healthvermont.gov/disease-control/zoonotic-diseases/rabies	January–April 2026
2024 Rabies Surveillance Report	Surveillance Report (PDF)	Public Health Professionals	https://www.healthvermont.gov/sites/default/files/document/lsid-2024-rabies-surveillance-report.pdf	January–April 2026
Animal Bite Report Form	Regulatory Reporting Form (PDF)	Healthcare Providers	https://www.healthvermont.gov/disease-control/zoonotic-diseases/rabies	January–April 2026
Rabies Postexposure Prophylaxis (PEP) Reporting Form	Regulatory Reporting Form (PDF)	Healthcare Providers	https://www.healthvermont.gov/disease-control/zoonotic-diseases/rabies	January–April 2026
Laboratory Rabies Testing Information	Laboratory Guidance Webpage	Healthcare Providers; Laboratories	https://www.healthvermont.gov/lab/rabies-testing	January–April 2026
Wildlife Oral Rabies Vaccination (ORV) Information	Wildlife Control Communication Webpage	General Public; Stakeholders	https://www.healthvermont.gov/disease-control/zoonotic-diseases/rabies	January–April 2026

Rabies Hotline and Consultation Information	Contact and Consultation Webpage	General Public; Healthcare Providers	https://www.healthvermont.gov/disease-control/zoonotic-diseases/rabies	January– April 2026
Management of Potential Human, Bat-Related, and Pet Exposures to Rabies (Revised September 2018)	Clinical Decision-Su pport Flowcharts (PDF)	Healthcare Providers; Public Health Staff	https://www.healthvermont.gov/sites/default/files/documents/pdf/HS_ID_RabiesExposureAssessmentFlowCharts.pdf	January– April 2026

Appendix 2 – Product no.1 Vermont Rabies Exposure and PEP Provider
Quick-Reference Guide

VERMONT RABIES EXPOSURE & PEP PROVIDER QUICK-REFERENCE GUIDE



1) Exposure assessment

- Bite that breaks the skin
- Saliva contact with an open wound or mucous membranes
- Bat found in a room with a sleeping person, unattended child, or cognitively impaired individual



2) Delay PEP when animal is available

- Monitor cats, dogs, and ferrets for 10 days following bite
- Test all high-risk animals for rabies



3) High-risk animals in Vermont

- Bats • Raccoons • Woodchucks
- Foxes • Skunks • Wild terrestrial carnivores



4) Wound care

- Wash thoroughly with soap and water for 15 minutes
- Apply povidone-iodine solution or other virucidal agent if available



5) PEP administration guide

- Administer human rabies immune globulin (HRIG) on Day 0
- HRIG dosing: Infiltrate as much as possible into and around wound(s); give remainder intramuscularly
- Rabies vaccine on Days 0, 3, 7, and 14
- Immunocompromised patients: 5-dose series (Days 0, 3, 7, 14, 28)



6) Reporting requirements

- Complete Animal Bite Report Form
- Complete Rabies PEP Report Form



7) Contact health department

- 802-863-7240 (covered 24/7)
- Uncertain exposures • Administration questions
- Immunocompromised patients

BAT EXPOSURE: WHAT YOU NEED TO KNOW



WHAT IS A BAT EXPOSURE?

You may have been exposed to rabies if:



- A bat bites or scratches you
- A bat is found in a room with a sleeping person, unattended child, or someone who cannot report contact

Rabies is rare but almost always fatal once symptoms begin. Early treatment can prevent illness.



WHAT SHOULD I DO?

DO NOT release the bat and call the Rabies Hotline (1-800-4-RABIES) for assistance. If bitten, wash the area with soap and water and call your healthcare provider.



WHEN TO SEEK MEDICAL CARE

Seek medical care if:

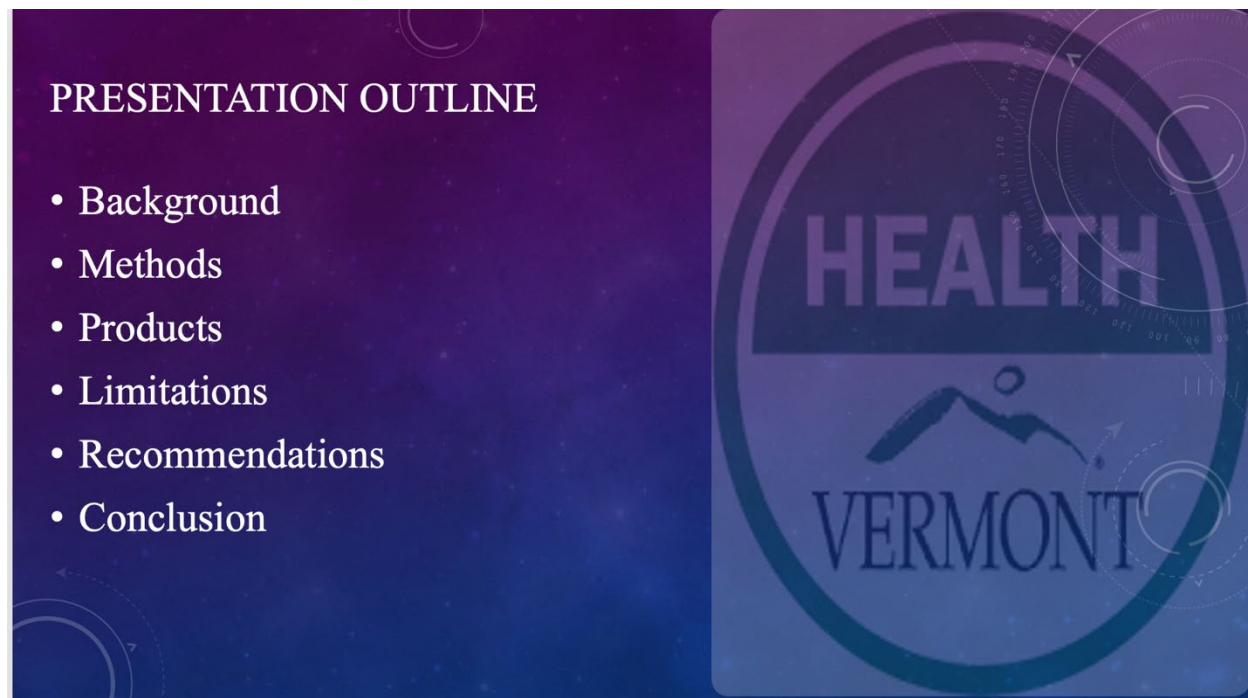
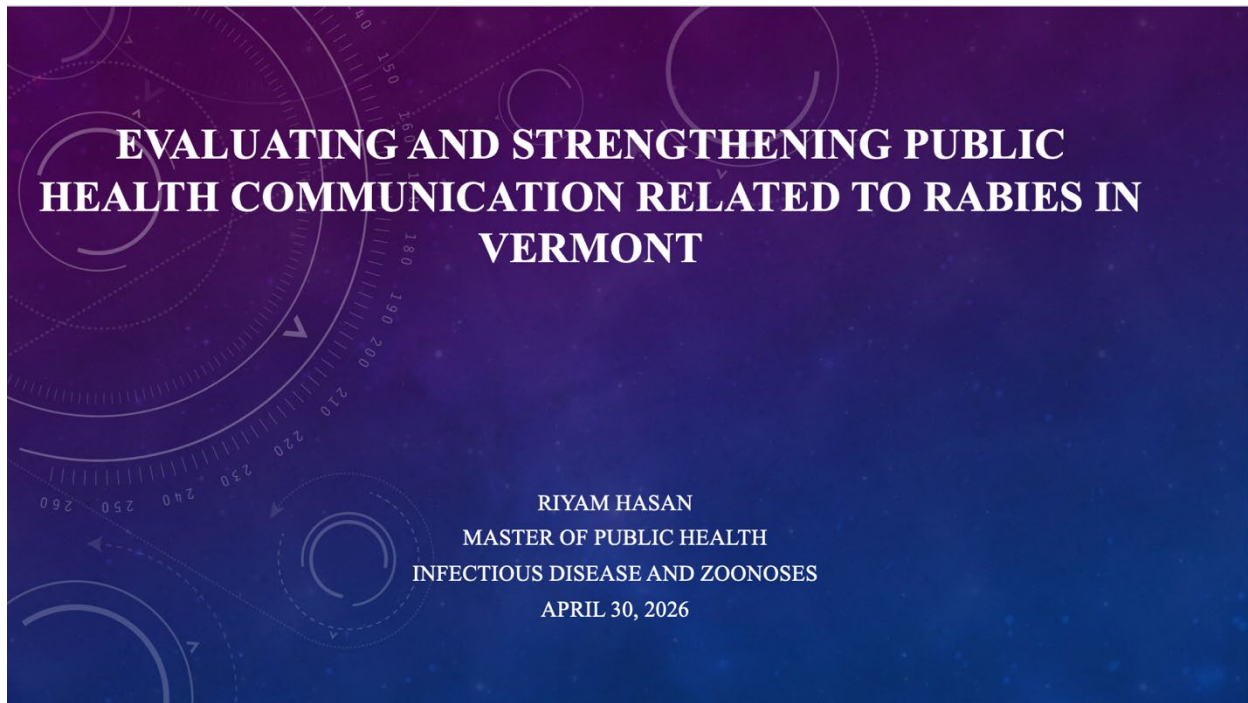
- You were bitten or scratched by a bat and it is released or not available

Rabies treatment works best when started quickly.

CONTACT INFORMATION

Vermont USDA Rabies Hotline: 1-800-472-2437 or
800-640-4374

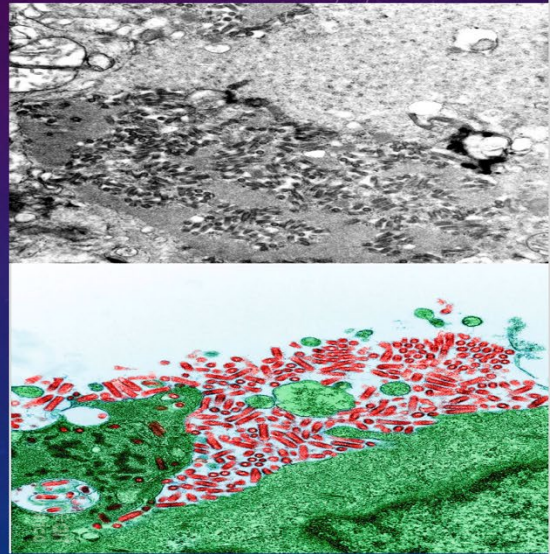
Appendix 4- Product no. 3 VDH Presentation Slides



Background

INTRODUCTION : RABIES

- Nearly 100% fatal once symptoms develop
- Approximately 59,000 deaths annually worldwide
- Rare in U.S., but wildlife reservoirs persist
- Caused by the rabies virus (RABV), which belongs to the genus *Lyssavirus*

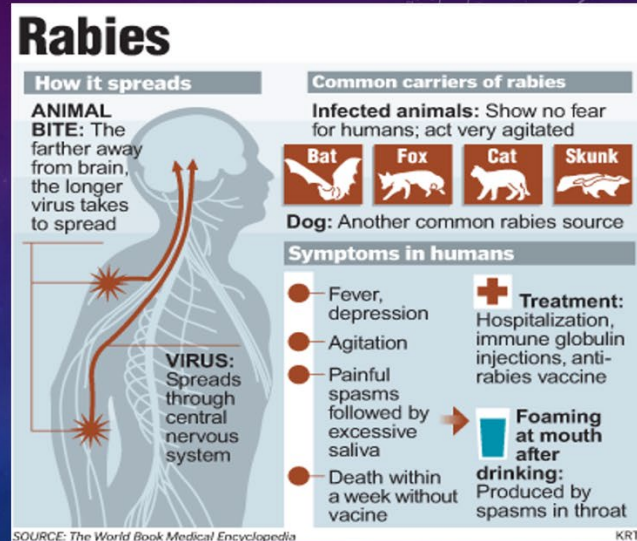


Upper Image: CDC / Dr. Fred Murphy

Lower Image: NIAID / NIH / Science Photo Library (2022).

BACKGROUND: RABIES IN HUMANS

- **Incubation**
 - Usually 1–3 months
 - Variable based on exposure site
- **Early Symptoms**
 - Fever, headache, malaise
 - Tingling at the bite site
- **Neurologic Disease**
 - Agitation, confusion
 - Hydrophobia
 - Progressive paralysis

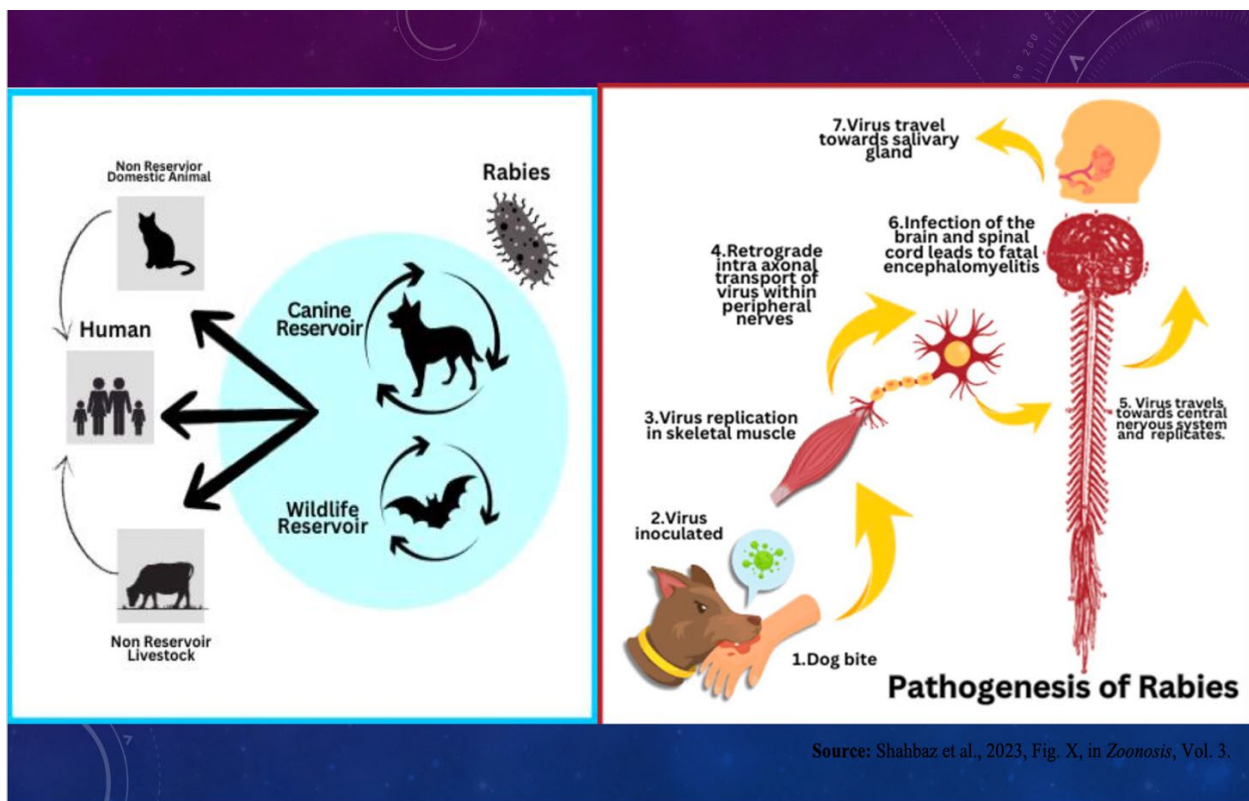


BACKGROUND: RABIES IN ANIMALS

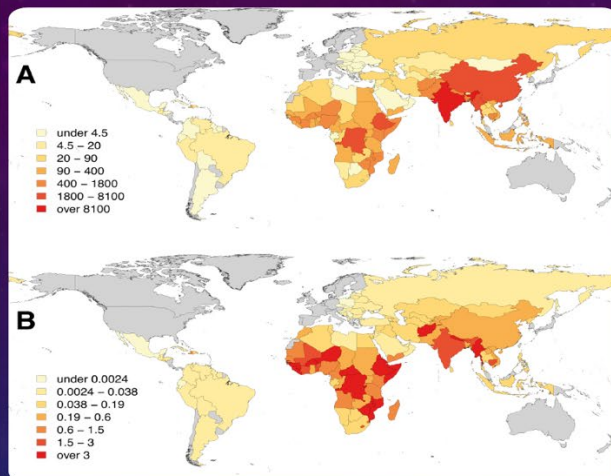
- Maintained in wildlife reservoirs (bats, raccoons, skunks, foxes)
- Transmitted through saliva via bites
- Spillover to domestic animals can occur
- Rapid, fatal disease after symptom onset
- Coyotes infected through spillover
- **Canine rabies variant eliminated in U.S. (2007)**



CDC. Public Health Image Library (PHIL), Image ID #2180. 1994. Public domain.



BACKGROUND: GLOBAL BURDEN OF RABIES

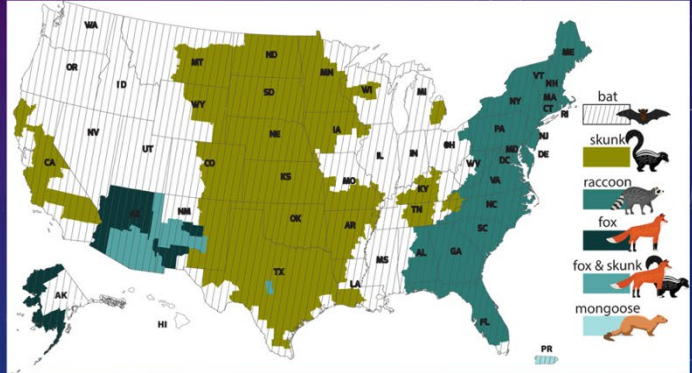


- India and several central African countries show the greatest mortality
- Many high-income countries (e.g., U.S., Western Europe, Australia) report minimal or no canine rabies deaths
- Geographic disparities reflect differences in dog vaccination coverage, access to PEP, and health infrastructure
- This global estimates for the year 2010 as reported

Source: Hampson et al., *PLoS Negl Trop Dis*, 2015

RABIES IN THE UNITED STATES

- Wildlife reservoirs: raccoons, skunks, foxes, bats
- 1–3 human cases annually
- Most recent human cases linked to bats



Source: CDC Rabies Surveillance, 2024

BACKGROUND: BAT-ASSOCIATED HUMAN RISK

- The majority of U.S. human rabies deaths are bat-associated
- Most cases involve unrecognized or minimal contact
- Approximately 70% of human rabies cases in the U.S. since 1960 have been linked to bats (CDC).



Image by: Martie Bloem, Unsplash

(CON.)

- Cryptic exposures are common (no clear bite history)
- Risk assessment required in ambiguous exposure scenarios
- Prompt PEP prevents disease when exposure is suspected



Centers for Disease Control and Prevention. (2024). *Bats and rabies*.
<https://www.cdc.gov/rabies/exposure/animals/bats.html>

Image Source: U.S. Fish & Wildlife Service. A colony of big brown bats in an attic. Photo by Matthew Grady.

BACKGROUND: RABIES IN VERMONT

2025 Rabies Surveillance Report

March 2026

- 763 animals from 162 towns across Vermont were tested for rabies
- 66 confirmed rabid animals (2024 - 2025)
- Significant geographic clustering
- Endemic raccoon rabies zone
- Around 100,000 Americans are vaccinated against rabies following a potential rabies exposure each year.

Sources: Vermont Department of Health, *2025 Rabies Surveillance Report* (March 2026); CDC, 2024.

BACKGROUND: RABIES IN VERMONT

Confirmed Rabid Animals in Vermont (2023–2025)

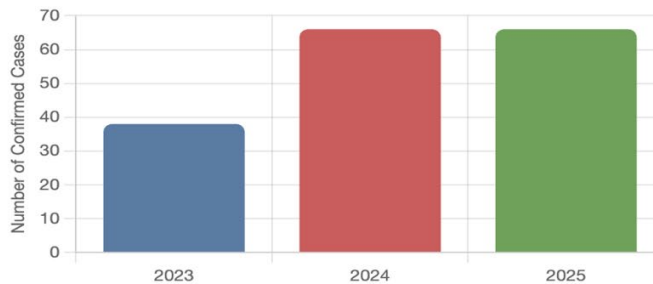
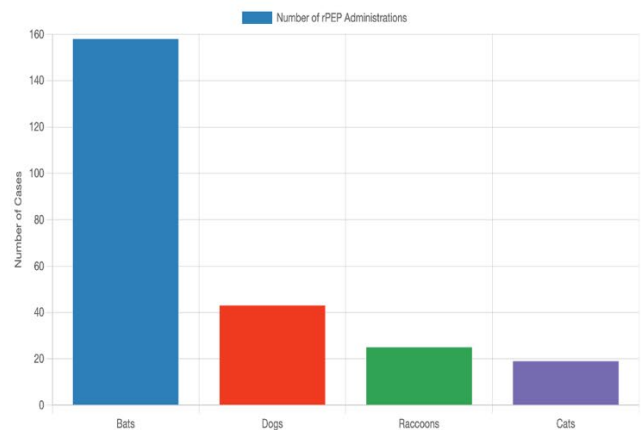


Figure 1. Confirmed rabid animals in Vermont, 2023–2025. 2025 data reflect provisional counts reported in the 2025 Rabies Surveillance Report. Source: Vermont Department of Health (2024, 2025, 2026).

2025 VERMONT EXPOSURE DATA (ANIMAL)

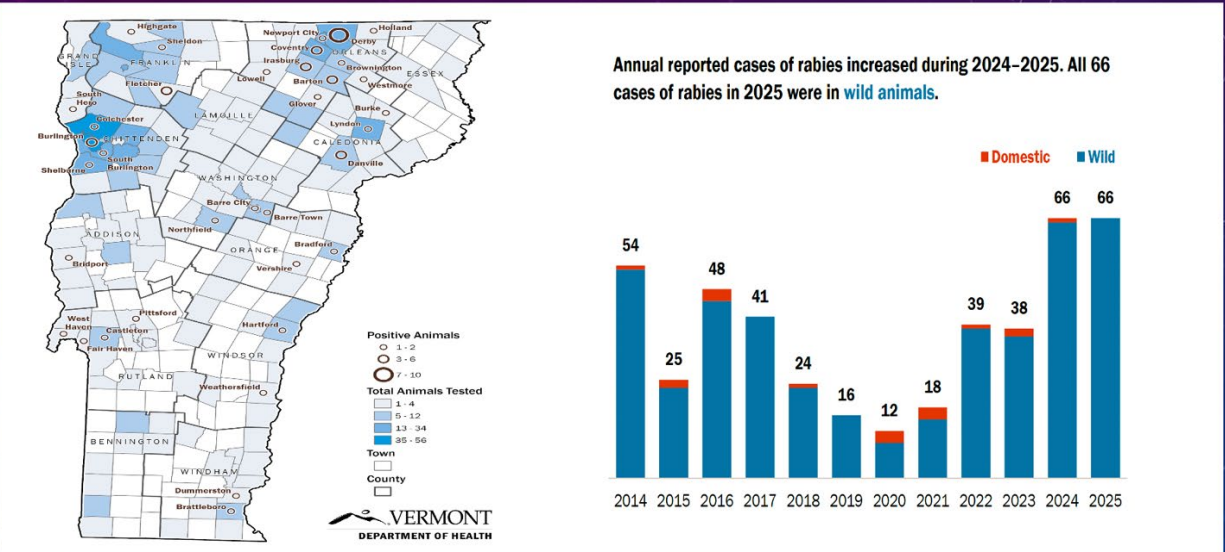
- **2025:** 260 rPEP administrations
- 61% associated with bat exposures (158 cases)
- Dogs (17%), raccoons (10%), cats (7%)
- rPEP peaked in August
- Hotline utilization elevated during increased wildlife activity

2025 Vermont rPEP by Exposure Type (n=260)



Source: Vermont Department of Health. Rabies Surveillance Report, 2025.

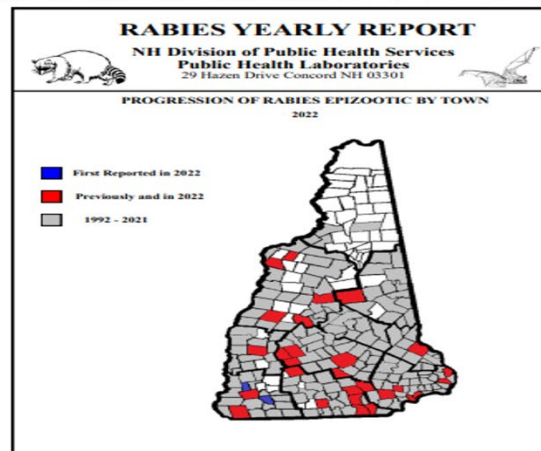
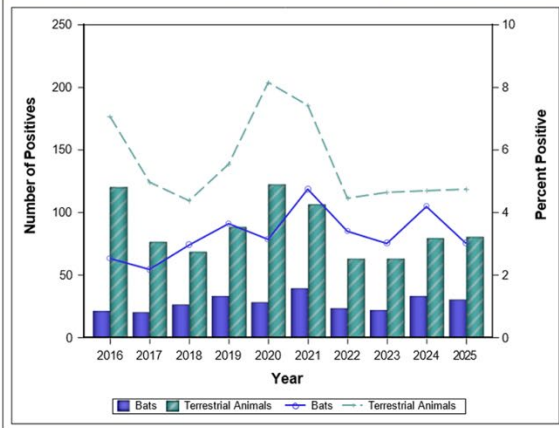
2025 VERMONT EXPOSURE DATA (LOCATION, TIME)



Source: Vermont Department of Health

REGIONAL CONTEXT FROM VT NEIGHBORS (NH, MA)

Figure 1. Number of Animals Positive for Rabies and Percent Positive by Year: Massachusetts, 2016–2025

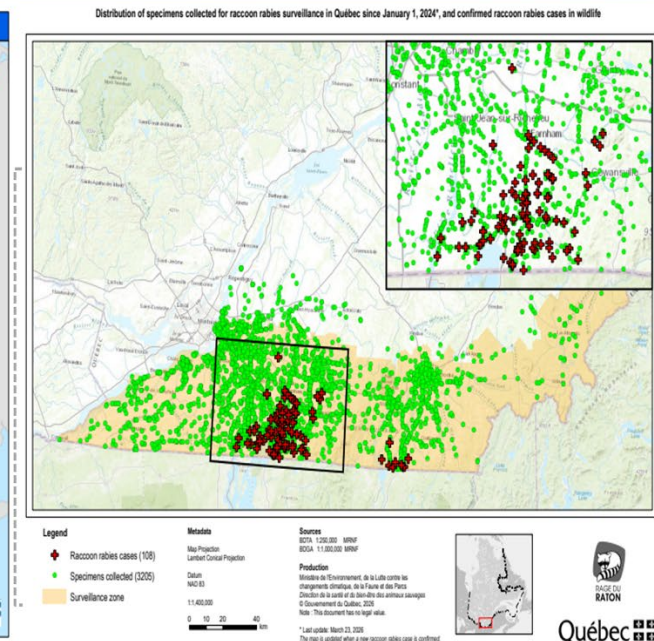
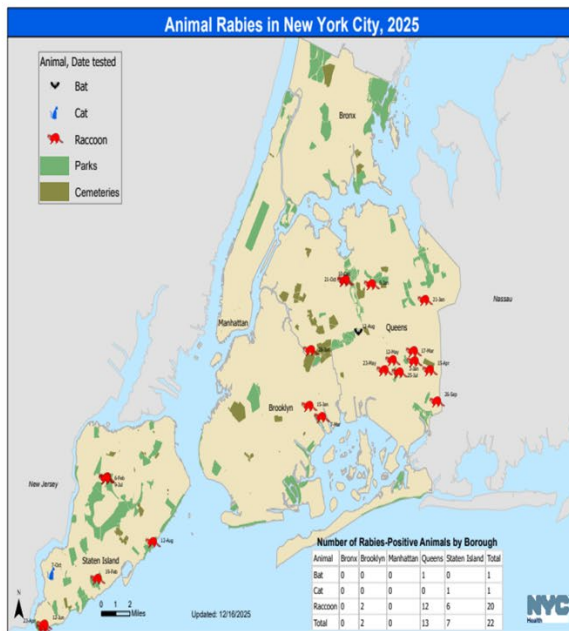


•VT trends are consistent with regional raccoon rabies activity in NH and MA

Sources:

Massachusetts Department of Public Health, *Rabies Surveillance Data (2016–2025)*;
New Hampshire Division of Public Health Services, *Rabies Yearly Report (2022)*.

REGIONAL CONTEXT FROM VT NEIGHBORS (NY, QUEBEC, CANADA)



Sources:
New York City Department of Health and Mental Hygiene, *Animal Rabies in NYC (2023)*;
Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (Québec),
Raccoon Rabies Surveillance, <https://www.melcc.gouv.qc.ca/rapports/rapports-annuels/2023/rapport-annuel-2023-2024>

CHALLENGES IN REDUCING RABIES CASES IN VT

- Wildlife reservoirs (raccoons, bats, skunks, foxes) sustain ongoing risk
- Most exposures involve bats (~61%), often without clear contact
- Unclear exposure history complicates decision-making
- Seasonal peaks and hotspots increase system strain
- High use of PEP is **costly** and resource-intensive
- **Messaging** may be inconsistent across sources
- **Complex guidance** can delay timely decisions

Methods

MATERIALS REVIEWED

Category	Number of Documents	Purpose in Communication System	Type
Surveillance Reports	2	Tracking disease trends	Internal
Public Education Materials	3	Raising awareness & prevention	External
Clinical Manuals	1	Guidance for health professionals	Internal
Reporting Forms	2	Data collection & case notification	Internal
Website Content	1	General information & resources	External

Source: Vermont Department of Health. Rabies Communication Materials Review (January–April 2026).

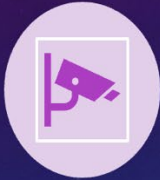
EVALUATION QUESTIONS



Do materials align with risk communication and health literacy principles?



How effectively is bat-associated exposure risk communicated?



Is human exposure risk proportionally emphasized relative to surveillance trends?



Where are gaps in clarity, consistency, and actionability?

EVALUATION CRITERIA

- Intended audience
- Clarity
- Terminology consistency
- Risk tone
- Action steps
- Alignment

EVALUATION RUBRIC

Structured Evaluation Rubric

Document Review Tool (0–2 Scale)

Criterion	Definition	Score (0–2)	Notes
Intended Audience	Target audience clearly identified and appropriate	0–2	
Clarity	Language understandable for intended audience	0–2	
Terminology Consistency	Consistent use of key rabies terms across materials	0–2	
Risk Tone	Appropriate balance of urgency and reassurance	0–2	
Action Steps	Clear, specific, actionable guidance provided	0–2	
Alignment	Consistent with CDC and VT DOH guidance	0–2	

Scoring Scale

- 0 = Not addressed
- 1 = Partially addressed
- 2 = Clearly addressed

Material	Intended Audience	Clarity	Terminology Consistency	Risk Tone	Action Steps	Alignment	Total (0–12)
2024 Rabies Surveillance Report	2	2	2	2	1	2	11
2025 Rabies Surveillance Report	2	2	2	2	1	2	11
Rabies Hotline Annual Report (2025)	2	1	2	1	1	2	9
Human Exposure Flowchart	2	2	2	2	2	2	12
Bat Exposure Flowchart	2	2	2	2	2	2	12
Pet Exposure Flowchart	2	2	2	2	2	2	12
Town Health Officer Bite Form	2	2	2	1	1	2	10
rPEP Report Form	2	2	2	1	1	2	10
Lab Request Form (Micro 201)	2	1	2	1	1	2	9
Rabies Alert Poster	2	2	2	2	2	2	12
Rabies Control Resource Manual (2018)	2	1	2	2	1	2	10

EVALUATION TABLE: AVERAGE SCORES BY CATEGORY

Category	Average Score
Intended Audience	2.0
Clarity	1.7
Terminology Consistency	2.0
Risk Tone	1.7
Action Steps	1.4
Alignment	2.0

EXAMPLE: CROSS-DOCUMENT VARIABILITY



Town Health Officer
Animal Bite Report Form

Reporting Information



Management of Potential Human Exposures* to Rabies



Was the patient bitten or had saliva directly
contact an open wound or mucous membrane?

YES

****** Reporting terminology is bite-specific “Animal Bite Report”, while clinical guidance uses broader “Potential Human Exposures” language inclusive of non-bite contact.

EXAMPLE: CROSS-DOCUMENT VARIABILITY

Public-Facing Website (FAQ Page)

Clinical Manual – Exposure Guidance

Frequently Asked Questions

▼ What should I do if I find a bat in my house?

Follow these steps if you find a bat in your room after waking up, or if you find a bat in a room with a person or animal who may not recognize the risk – like a child, a person with a cognitive disability, an intoxicated person or a pet.

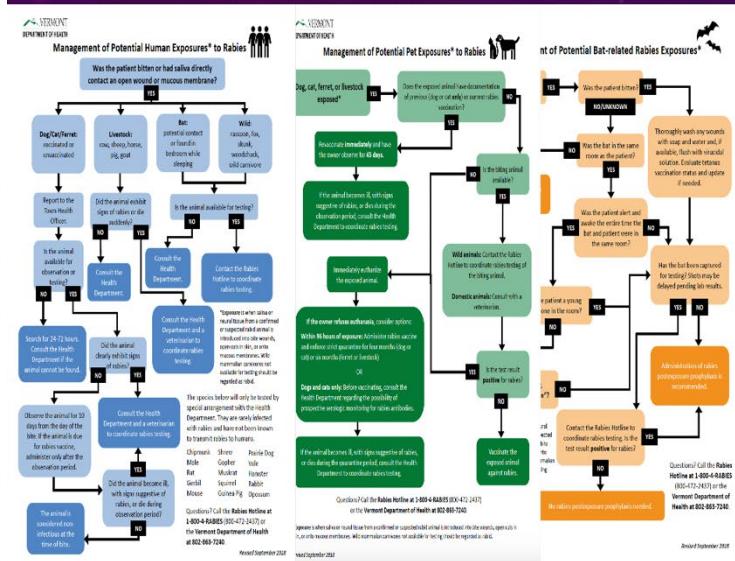
1. **Do not release the bat if it might have come in physical contact with a person or an unvaccinated pet.**
2. Call **1-800-4-RABIES** for assistance.
3. **Try to safely capture the bat only if you can do so without getting bitten.** Game Wardens, animal control officers, nuisance wildlife trappers, and Town Health Officers may be able to help capture bats.

Capture a bat if there has been a possible exposure.

Testing is recommended for any bat that has been in a room with an **unattended child, a sleeping, intoxicated, or mentally impaired individual, unvaccinated pet, or that has had physical contact with a person.** Game Wardens will assist in these situations by euthanizing the animal, packaging it, and sending or transporting it to the Vermont Department of Health Laboratory for testing, but will not be able to assist in the capture of a live bat. The Laboratory will not accept any live bats for testing.

**** The clinical manual outlines specific high-risk exposure scenarios (e.g., sleeping person, unattended child), whereas public-facing guidance emphasizes precautionary action and referral.**

EXAMPLE: CROSS-DOCUMENT VARIABILITY



**** Human, bat-related, and pet exposures are presented in separate algorithms, requiring cross-referencing during exposure assessment.**



Results

STRENGTHS IDENTIFIED THROUGH DOCUMENT REVIEW

- Clear differentiation between internal and external materials
- Strong support for clinical decision-making and reporting workflows
- Accessible, prevention-focused public guidance
- Consistent messaging across documents
- Alignment with CDC and Vermont Department of Health guidance

WEAKNESSES IDENTIFIED THROUGH DOCUMENT REVIEW

Internal Materials (Clinical / Reporting Documents)

- Variability in exposure definitions across guidance documents
- Inconsistent terminology between manuals and reporting forms
- Flowcharts are not directly integrated with reporting tools

External Materials (Public-Facing Content)

- Exposure scenarios described with less specificity
- Action steps dispersed across multiple webpages
- Messaging varied in level of detail compared to clinical guidance

(CONT.)

- **Bat exposure risk** is acknowledged; however, proportional emphasis varies across materials.
- **No consolidated provider** quick-reference tool
- **Clinical guidance** is dispersed across multiple documents
- **Time-sensitive** exposure scenarios increase cognitive burden



Photo credit: Photo by Annie Spratt on Unsplash (2023)

Products

PRODUCT NO. 1

Provider Quick-Reference Guide

Intended Users

- Emergency department clinicians
- Primary care and urgent care providers
- Public health nurses

VERMONT RABIES EXPOSURE & PEP PROVIDER QUICK-REFERENCE GUIDE



1) Exposure assessment

- Bite that breaks the skin
- Saliva contact with an open wound or mucous membranes
- Bat found in a room with a sleeping person, unattended child, or cognitively impaired individual



2) Delay PEP when animal is available

- Monitor cats, dogs, and ferrets for 10 days following bite
- Test all high-risk animals for rabies



3) High-risk animals in Vermont

- Bats • Raccoons • Woodchucks
- Foxes • Skunks • Wild terrestrial carnivores



4) Wound care

- Wash thoroughly with soap and water for 15 minutes
- Apply povidone-iodine solution or other virucidal agent if available



5) PEP administration guide

- Administer human rabies immune globulin (HRIG) on Day 0
- HRIG dosing: Infiltrate as much as possible into and around wound(s); give remainder intramuscularly
- Rabies vaccine on Days 0, 3, 7, and 14
- Immunocompromised patients: 5-dose series (Days 0, 3, 7, 14, 28)



6) Reporting requirements

- Complete Animal Bite Report Form
- Complete Rabies PEP Report Form



7) Contact health department

- 802-863-7240 (covered 24/7)
- Uncertain exposures • Administration questions
- Immunocompromised patients

PRODUCT NO. 2

Public Quick Reference Guide on Rabies and Bat Exposure

Intended Audience

- Vermont residents
- Individuals with potential bat exposures
- Parents and caregivers
- Community members seeking rabies information

BAT EXPOSURE: WHAT YOU NEED TO KNOW



WHAT IS A BAT EXPOSURE?

You may have been exposed to rabies if:

- A bat bites or scratches you
- A bat is found in a room with a sleeping person, unattended child, or someone who cannot report contact



Rabies is rare but almost always fatal once symptoms begin. Early treatment can prevent illness.



WHAT SHOULD I DO?

DO NOT release the bat and call the Rabies Hotline (1-800-4-RABIES) for assistance. If bitten, wash the area with soap and water and call your healthcare provider.



WHEN TO SEEK MEDICAL CARE

Seek medical care if:

- You were bitten or scratched by a bat and it is released or not available

Rabies treatment works best when started quickly.

CONTACT INFORMATION

Vermont USDA Rabies Hotline: 1-800-472-2437 or 800-640-4374

Limitations Recommendations Conclusions

LIMITATIONS OF THE PROJECT

- Evaluation limited to publicly accessible materials
- No stakeholder interviews conducted
- No formal usability testing of the provider guide
- No quantitative outcome evaluation (e.g., pre- and post-implementation PEP trends)

RECOMMENDATIONS

Individual Level

- Maintain clear, action-oriented bat exposure guidance
- Preserve visibility of the rabies hotline and consultation pathways

Institutional Level

- Adopt and disseminate the Provider Quick-Reference Guide
- Standardize terminology across public, clinical, and reporting materials
- Implement routine cross-document communication reviews

Policy / Systems Level

- Integrate communication system audits into routine rabies program evaluation cycles

CONCLUSIONS

- Vermont's rabies communication system is comprehensive, structured, and operationally strong
 - However, inconsistencies in terminology and exposure definitions create confusion across public and clinical messaging
- Key guidance is fragmented across multiple documents, increasing cognitive burden during time-sensitive decision-making

CONCLUSIONS (CONT.)

- Bat-associated exposure risk—while recognized—is not consistently or proportionally emphasized despite being the primary driver of human risk
- Lack of centralized, quick-reference tools limits efficient decision support for both providers and the public
- Overall, targeted improvements in integration, clarity, and alignment—rather than expansion—could significantly enhance communication effectiveness and support timely PEP decisions



QUESTIONS?

Source: State of Vermont. Vermont State House, Montpelier.

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