Communicable Disease Surveillance Report

Fiscal Quarter 4
January 1 – March 31, 2021

Date: April 30, 2021

Labrador-Grenfell Health

Communicable Disease Surveillance Report

Disclaimer

The purpose of this report is to provide an overview of reportable communicable disease activity within the Labrador-Grenfell Health (LGH) Regional Health Authority. This activity is represented by case counts. The text of any disease that has exceeded the upper threshold during this quarter (calculated based on the previous 5 years) is coloured red.

Please note that due to continuous reporting, as well as potential delays in reporting, data is subject to change.

Diseases that Exceeded Threshold

LGH flags diseases that exceed an upper threshold. This is calculated using the 3rd quartile + 1.5 * interquartile range for each quarter, over the previous 5 calendar years. This may mean increased activity of this disease during this period.

During this quarter, two diseases exceeded the upper threshold: Cytomegalovirus, Invasive Pneumococcal Disease (IPD)

Disease Counts

Table 1. Enteric, Food, and Waterborne Diseases

	Current Quarter	YTD	YTD 2020	5-Year Historical Median	Upper Threshold
Amoebiasis	0	0	0	0.0	0.0
Botulism	0	0	0	0.0	0.0
Campylobacteriosis	1	1	0	0.8	4.8
Cryptosporidiosis	0	0	0	0.3	1.1
Cyclosporiasis	0	0	0	0.0	0.6
Cytomegalovirus	**4**	**4**	**1**	**0.8**	**3.2**
Giardiasis	0	0	0	0.8	1.9
Hepatitis A	0	0	1	0.0	0.6
Listeriosis	0	0	0	0.0	0.0
Salmonellosis	2	2	2	2.5	8.8
Shigellosis	0	0	0	0.0	0.0
Typhoid/Paratyphoid Fever	0	0	0	0.0	0.0
Verotoxigenic Escherichia coli	0	0	0	0.5	1.4
Yersiniosis	0	0	0	0.0	0.0

Table 2. Diseases Transmitted by Direct Contact and Respiratory Route

	Current Quarter	YTD	YTD 2020	5-Year Historical Median	Upper Threshold
COVID-19	2	2	6		
Creutzfeldt-Jakob Disease (CJD)	0	0	0	0.0	0.0
Group B Streptococcal Disease, Neonatal	0	0	0	0.0	0.3
Influenza Virus of a Novel Strain	0	0	0	0.0	0.0
Invasive Group A Streptococcal Disease	1	1	0	0.5	2.6
Invasive Haemophilus Influenza non-type B	1	1	0	0.5	1.1
Invasive Meningococcal Disease (IMD)	0	0	0	0.3	0.6
Invasive Pneumococcal Disease (IPD)	**2**	**2**	**0**	**0.8**	**1.8**
Legionelloisis	0	0	0	0.0	0.0
Meningitis, Bacterial (excl Hib, IMD, IPD)	0	0	0	0.0	0.0
Meningitis, Viral	0	0	0	0.0	0.0
Nontuberculosis Mycobacterial Disease	0	0	0	0.0	0.0
Severe Respiratory Illness, Unknown Origin	0	0	0	0.0	0.0
Tuberculosis, Non-respiratory	0	0	0	0.3	1.6
Tuberculosis, Respiratory	3	3	3	2.5	8.4
Tuberculosis (all)	3	3	3	2.5	9.4

Table 3. Sexually Transmitted and Blood Borne Infections (STBBIs)

	Current Quarter	YTD	YTD 2020	5-Year Historical Median	Upper Threshold
Chlamydia	52	52	70	42.8	63.8
Gonorrhea	1	1	0	0.5	1.7
Hepatitis C	2	2	5	2.5	7.6
HIV Infection	0	0	0	0.0	0.6
Syphilis, Infectious	0	0	0	0.0	0.6
Syphilis, Noninfectious	0	0	0	0.0	0.0

Table 4. Vectorborne and Other Zoonotic Diseases

	Current Quarter	YTD	YTD 2020	5-Year Historical Median	Upper Threshold
Lyme Disease	0	0	0	0.0	0.0
Malaria	0	0	0	0.0	0.0
Q Fever	0	0	0	0.0	0.0
Rabies	0	0	0	0.0	0.0
Toxoplasmosis	0	0	0	0.0	0.0
Trichinellosis	0	0	0	0.0	0.0
West Nile Virus	0	0	0	0.0	0.0

Table 5. Vaccine Preventable Diseases

	Current Quarter	YTD	YTD 2020	5-Year Historical Median	Upper Threshold
Congenital Rubella Syndrome	0	0	0	0.0	0.0
Hepatitis B	0	0	0	0.3	0.4
Invasive Haemophilus Influenza type B (Hib)	0	0	0	0.0	0.6
Measles	0	0	0	0.0	0.0
Mumps	0	0	0	0.0	0.0
Pertussis	0	0	0	0.0	0.0
Rubella	0	0	0	0.0	0.0
Tetanus	0	0	0	0.0	0.0
Varicella/Chickenpox	0	0	4	3.0	16.4

In Focus: Rabies

About Rabies

Rabies is an infectious viral disease that affects the central nervous system of mammals, including humans, and is almost always fatal following the onset of clinical symptoms. [1] The rabies virus is a ribonucleic acid (RNA) virus of the Rhabdoviridae family. Different variants of the virus are typically associated with specific species of mammals. [2] The rabies virus is a zoonotic disease, meaning that it spreads from non-human animals to humans. [3]

Rabies is found worldwide. In Canada and the U.S., the prevalence of rabies is relatively low and the disease is more commonly found in wildlife than domestic animals. [4] Foxes, skunks, raccoons, and bats are commonly recognized as reservoirs of the rabies virus capable of transmitting infection to dogs, cats, livestock, and people. [2] Rabid dog bites are responsible for approximately 99% of all human rabies cases in the world, constituting an important area of focus for human rabies prevention campaigns. [1]

The rabies virus is spread to humans when virus in the saliva of an infected animal enters the body through a bite, scratch, broken skin, the mucous membranes, or the respiratory tract. After entering the body, the virus travels through the peripheral nerves to the central nervous system, where it multiplies quickly in the brain. [2,4] Although bites from an infected animal are the main route of exposure for cases of human rabies, transmission can also occur through transplantation of organs from undiagnosed infected persons. [5]

The incubation period may range from days to many months, although symptoms typically occur within 3 to 8 weeks. [2] The length of the incubation period is dependent on a number of factors, including the strain of rabies virus, the viral load, and the location of the bite. Animals are generally considered unable to spread the disease prior to the onset of symptoms. However, it has been noted that the virus may be present in animal saliva several days before it becomes noticeably ill. [4]

Early symptoms of rabies include headache, malaise, fever, and fatigue. [2] There may also be discomfort or pain at the site of exposure where a person was bitten. Symptoms progress quickly as the central nervous system is attacked, with the illness presenting in one of two ways. The most common form of rabies is the agitated (or furious) form that presents with symptoms of hydrophobia and aerophobia, which involves severe laryngeal or diaphragmatic spasms and a

choking sensation when attempting to drink or when air is blown in the face. This presentation features a rapidly progressing encephalitis and death. The paralytic form of the infection involves progressive flaccid paralysis and is more difficult to diagnose due to its more protracted course. [2] There is no treatment for rabies once clinical signs appear. However, medical professionals can administer post-exposure prophylaxis (PEP) to a person following exposure to an animal suspected of carrying the disease. Pre-exposure vaccination is recommended for people involved in occupations that put them at high risk of rabies exposure. [4]

Human diploid cell vaccine (HDCV) is the rabies vaccine used in pre-exposure immunization of humans for rabies. HDCV and Rabies Immunoglobulin (RIG) are both used in post-exposure management of rabies, according to schedules recommended by The Canadian Immunization Guide. [2] RIG is administered to individuals who have not been vaccinated for rabies prior to the exposure or who do not have detectable antibodies to fight the virus. RIG provides rapid passive immunity and provides the person with sufficient antibodies to fight the virus until the body can produce its own. If not injected immediately (at a dose of 20 IU/kg body weight), it can be injected up to 7 days after the event. [6] HDCV provides the patient with active immunity against the rabies virus following four 1.0 mL IM doses administered on days 0, 3, 7, and 14 post-exposure. Antibodies take up to 10 days to develop following vaccination and persist for several years. [6] An additional dose on day 28 is recommended for individuals who are immunosuppressed. It should be noted that appropriately immunized individuals requiring PEP receive just two doses of HDCV on day 0 and 3, with administration of RIG considered unnecessary. [1]

The Newfoundland and Labrador (NL) Rabies Policy Manual classifies potential rabies exposures into one of three categories:

1. Category I ("no risk") - Touching or feeding of animals, licks on intact skin, or contact of intact skin with secretions or excretions of a rabid animal or human.
2. Category II ("low risk") - Nibbling of uncovered skin, minor scratches, or abrasions without bleeding.
3. Category III ("high risk") - Transdermal bites, scratches, licks on broken skin, contamination of mucous membranes with saliva from licks and exposure to bats.

In the event of human exposure to a potentially rabid animal, the wound should be treated by a frontline healthcare worker and the case should be forwarded to the Regional Medical Officer of Health for risk assessment. Category I events are not considered exposures; thus, no post-exposure prophylaxis or observation period is necessary. For category II exposures, PEP is offered to the individual and if the animal is domestic it is ordered to be confined for a public health controlled 10-day observation period to determine if it is positive for rabies. If the animal is wild and can be found it is sent in for testing. Similarly, for category III exposures domestic animals are confined for a 10-day observation period. Wild animals that can be captured are euthanized and sent for rabies testing at the Canadian Food Inspection Agency laboratories. Prophylaxis is started for the individual who has been exposed, which can later be stopped if tissue sample testing comes back as negative. [6]

Epidemiology of Rabies in Canada

Human rabies

Cases of human rabies occur very rarely in Canada, with just three cases reported since 1990. The three most recent cases of human rabies in Canada involved transmission from bats. These cases occurred in Quebec in 2000, British Columbia in 2003, and Alberta in 2007. [2] Between 1924 and 2009, a total of 24 rabies-related deaths have been reported across six provinces: twelve in Quebec,

six in Ontario, two in Saskatchewan, two in Alberta, one in British Columbia, and one in Nova Scotia. [1]

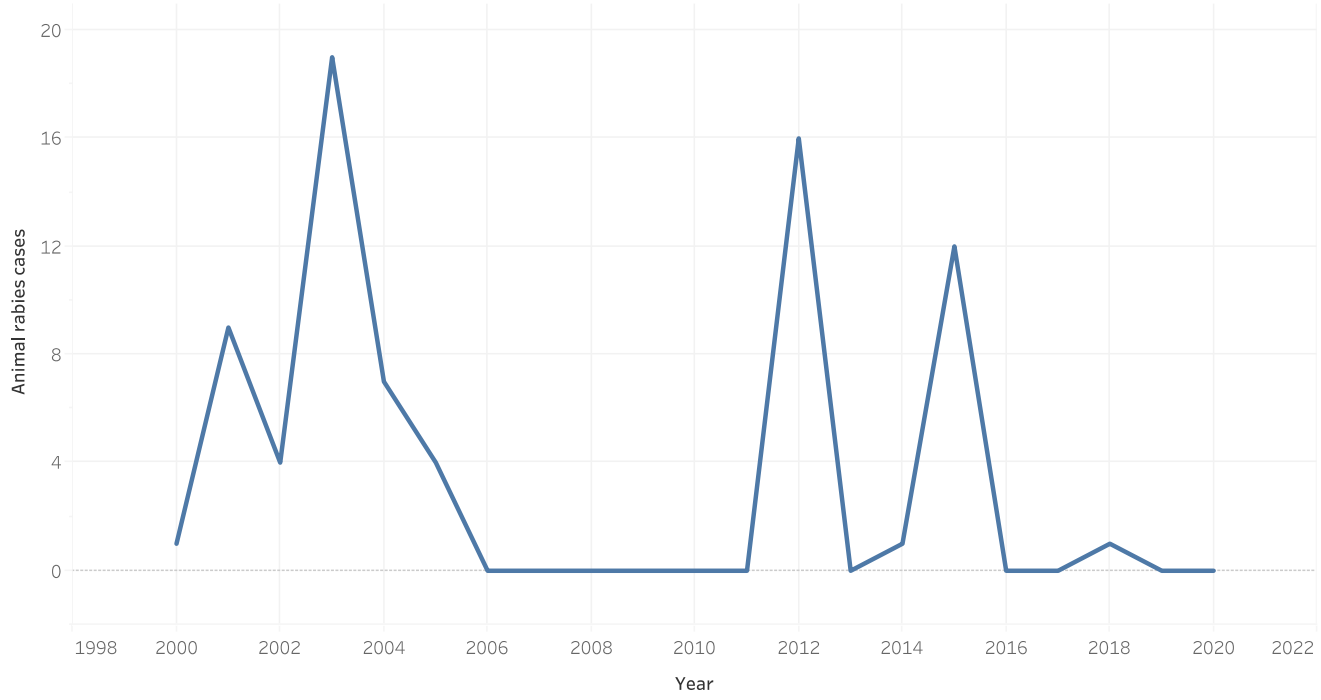
Animal rabies
The number of rabid animals detected in Canada has decreased from 670 in 2000 to 104 in 2020. [7] This decline has been attributed in part to wildlife rabies control measures including oral rabies vaccinations through baiting programs and trap-vaccinate-release programs. [2] In 2020, 2675 samples were submitted for rabies testing, with 3.9% of these samples (104 samples) testing positive for rabies. Bats accounted for 72% of reported cases, followed by skunks at 14%, raccoons at 4%, dogs and bovine (i.e., cattle) at 3% each, and red fox at 2%. [7]

Epidemiology of Rabies in Newfoundland and Labrador

Human rabies
There have been no documented cases of human rabies in Newfoundland and Labrador.

Animal rabies
Animal rabies is considered uncommon on the island portion of Newfoundland and Labrador. An outbreak was reported in 2002-2003, with approximately 20 cases involving the arctic fox strain of the rabies virus. Otherwise, animal rabies cases have been confined to the Labrador-Grenfell Health (LGH) region of the province. [6] Figure 1 shows the total number of animal rabies cases in Newfoundland and Labrador between the years 2000 and 2020. [7]

Figure 1. Animal Rabies Cases in Newfoundland and Labrador, 2000-2020



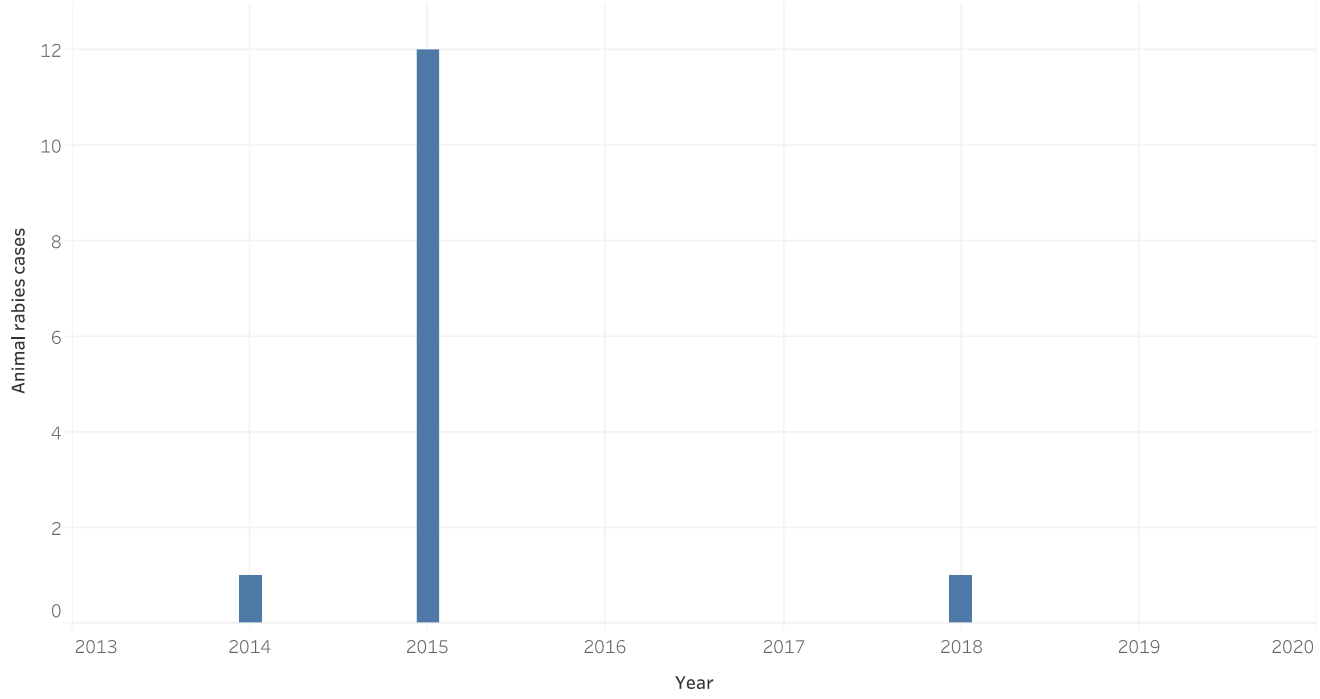
Epidemiology of Rabies in the LGH Region

Human rabies
There have been no documented cases of human rabies in the LGH region.

Animal rabies

The most recent case of animal rabies in the LGH region was in Rigolet in 2018, where a red fox tested positive for the virus. Prior to the singular case in 2018, the LGH region reported 12 cases of animal rabies in 2015 and 1 case in 2014, as illustrated in Figure 2.

Figure 2. Animal Rabies Cases in the LGH Region, 2013-2020

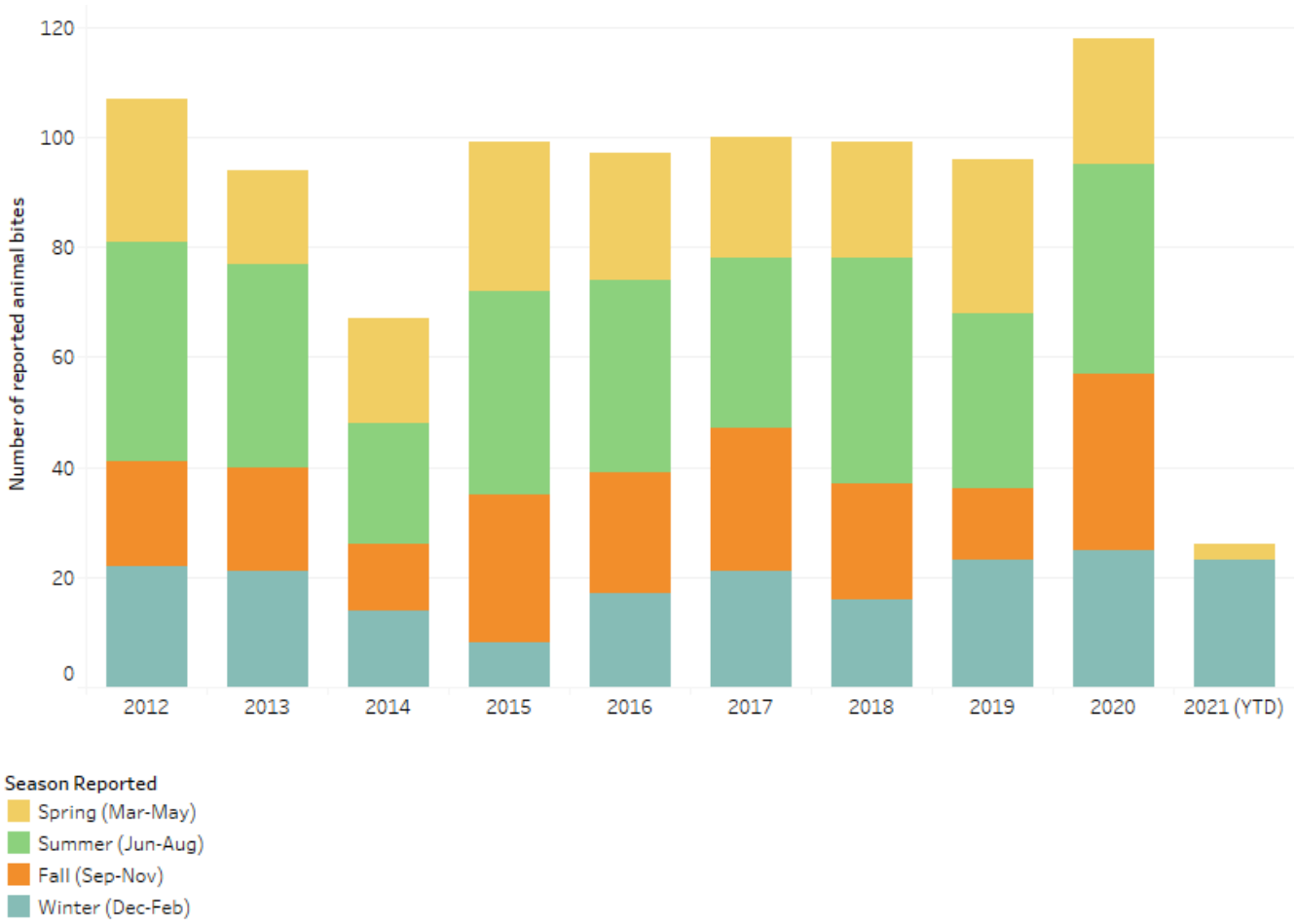


Animal Bites in the LGH Region: A Public Health Issue

The World Health Organization highlights the reduction of animal bites, particularly rabid dog bites, as an important area of focus for human rabies prevention campaigns. It is currently estimated that dog bites are responsible for approximately 99% of all human rabies cases in the world. [1] Given the recent history of animal rabies cases in the LGH region, bites from unvaccinated dogs typically represent a high-risk exposure for which patients require PEP. [6]

Data on animal bites and PEP in the LGH region was obtained for the years 2012 to 2021 (year-to-date). The date, community, and primary healthcare zone of each event was reported in the LGH database, as well as whether PEP was recommended, initiated, and completed for each case. Between 2015 and 2019, animal bite reports ranged between 90 and 100 per year. In 2020, a total of 118 animal bites were reported in the LGH region. Twenty-six animal bites have been reported so far in 2021 (as of March 31, 2021). As Figure 3 shows, in general, the highest number of animal bites were reported during the summer months (June – August), while the fewest animal bites were reported during the winter months (December – February).

Figure 3. Animal Bites in the LGH Region, by Year and Season, 2012-2021 (YTD)



Reported animal bites were broken down by geographical sub-region to determine where the most bites and the highest rates occurred in the LGH region between 2012 and 2021 (YTD). Figure 4 is a heat map which illustrates the absolute number of animal bites and the median annual animal bite rate per 100,000 for each primary healthcare zone. Animal bite rates were calculated using population data reported in the 2016 Canadian census. [8] Darker shades of colour represent higher absolute numbers or median annual rates of animal bites in a particular sub-region. As the chart illustrates, the Northern Labrador region had the highest absolute number of animal bite cases (n=229), as well as the highest median annual animal bite rate (713.3 cases per 100,000) among all healthcare zones. Southern Labrador had the lowest absolute number of animal bite cases (n=64), while Labrador West had the lowest median annual animal bite rate (157.7 cases per 100,000).

Figure 4. Total Number and Median Annual Rate (per 100,000) of Animal Bites in the LGH region, by Sub-region, 2012-2021 (YTD)

	Total # of Animal Bites	Median Annual Rate
Central Labrador	324	370.0
Labrador West	151	157.7
Northern Labrador	229	713.3
Northern Peninsula	136	166.8
Southern Labrador	64	188.4

For each of the animal bites in the LGH region between 2012 and 2021 (YTD), data was recorded outlining whether PEP was indicated for the affected patient based on the risk category of the animal exposure. Figure 6 reports animal bites cases by geographical sub-region and PEP recommendations for the given case. In cases where it was not explicitly stated that PEP was or was not recommended, additional information from the LGH animal bite database was used to make inferences, without further consultation to the case file. These cases were categorized as being "Probably yes" or "Probably no" for PEP having been recommended.

As Figure 5 illustrates, the Central Labrador region had both the highest number (n=75) and percentage (23.1%) of animal bite cases where PEP was recommended, while Southern Labrador had the fewest cases where PEP was recommended (n=5) and the Northern Peninsula (n=8) had the lowest percentage of cases (5.9%) where PEP was recommended.

Figure 5. PEP Recommendations for Animal Bites in the LGH Region, by Sub-region, 2012-2021 (YTD)

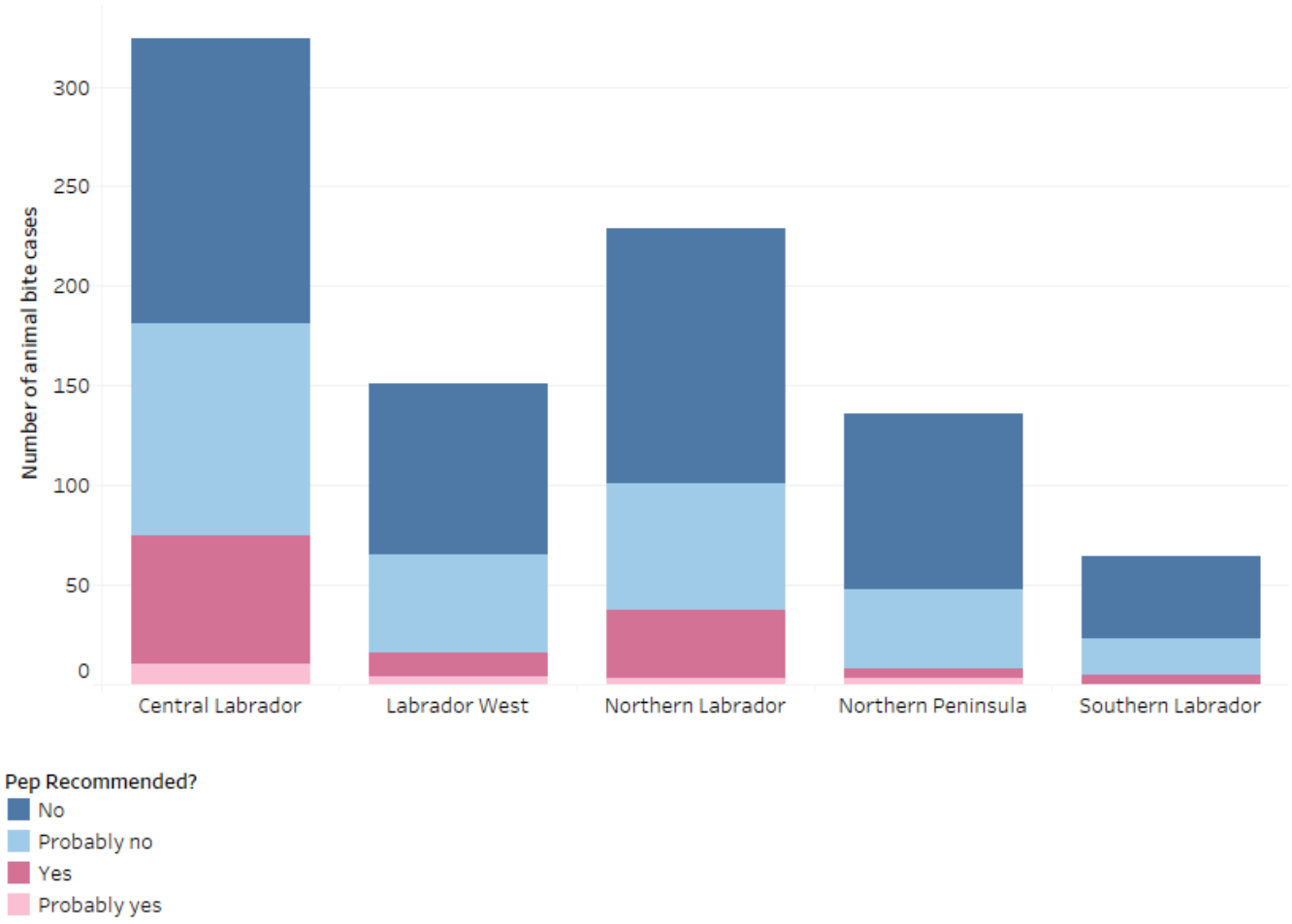


Figure 6 is an area chart depicting the number of cases where PEP was recommended or likely recommended in the LGH region for the years 2012 to 2021 (YTD). The cases are broken down by geographical sub-region, with the area for each zone representing the proportion of PEP-recommended cases it accounted for in any given year. As the chart illustrates, the Central Labrador region accounted for the most cases where PEP was recommended or likely recommended during every year except 2015, when 8 cases required PEP in the Northern Labrador region, and 2021 (YTD), when 5 cases required PEP in the Northern Labrador region. The years 2013 and 2019 had the highest number of cases with PEP recommended (n=20 cases for both years). Furthermore, Central Labrador had the highest single year PEP requirements for any healthcare zone, with PEP recommended for 13 cases in 2013.

Figure 6. PEP Recommended for Animal Bites, by Sub-region, 2012-2021 (YTD)

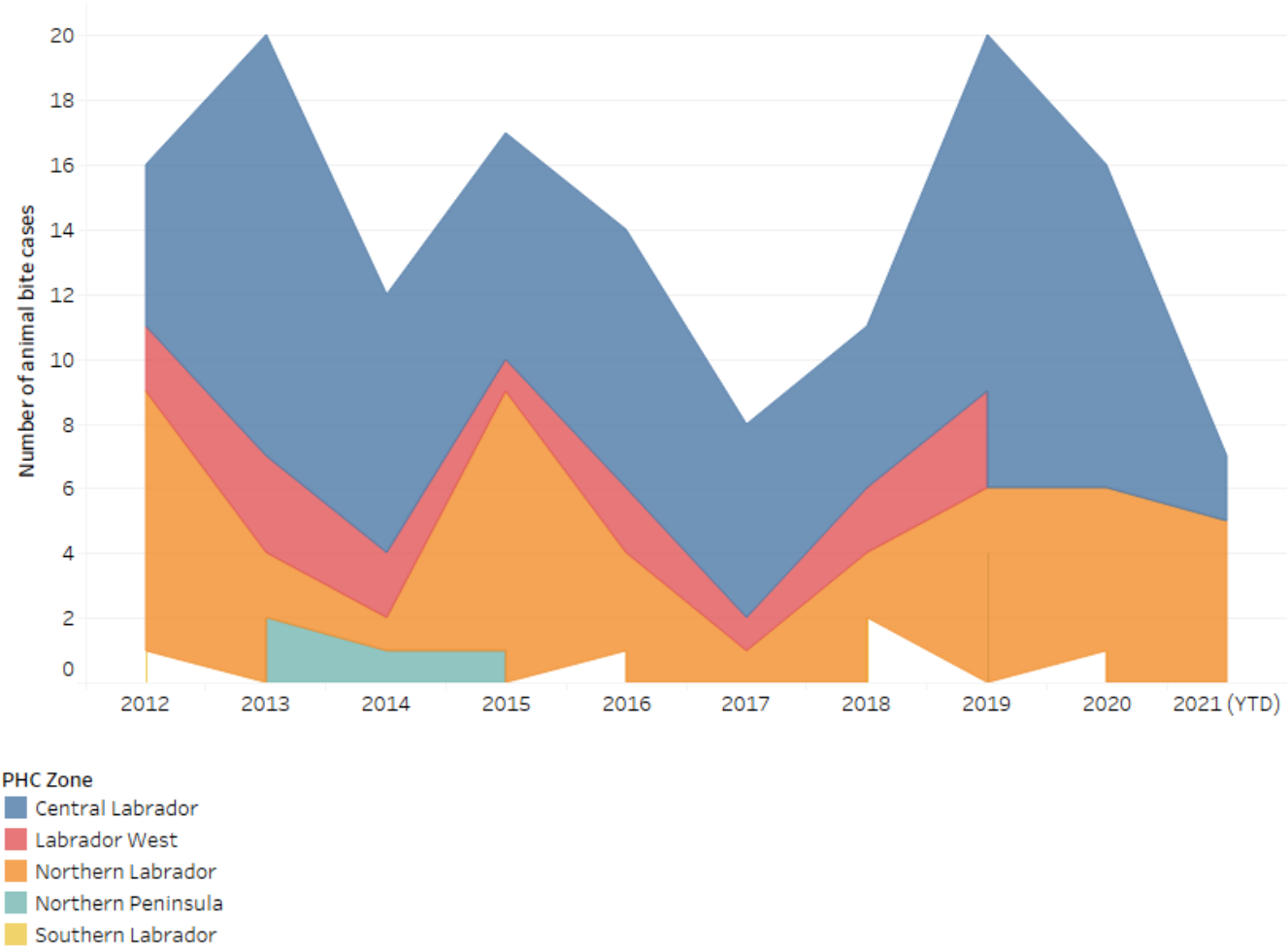
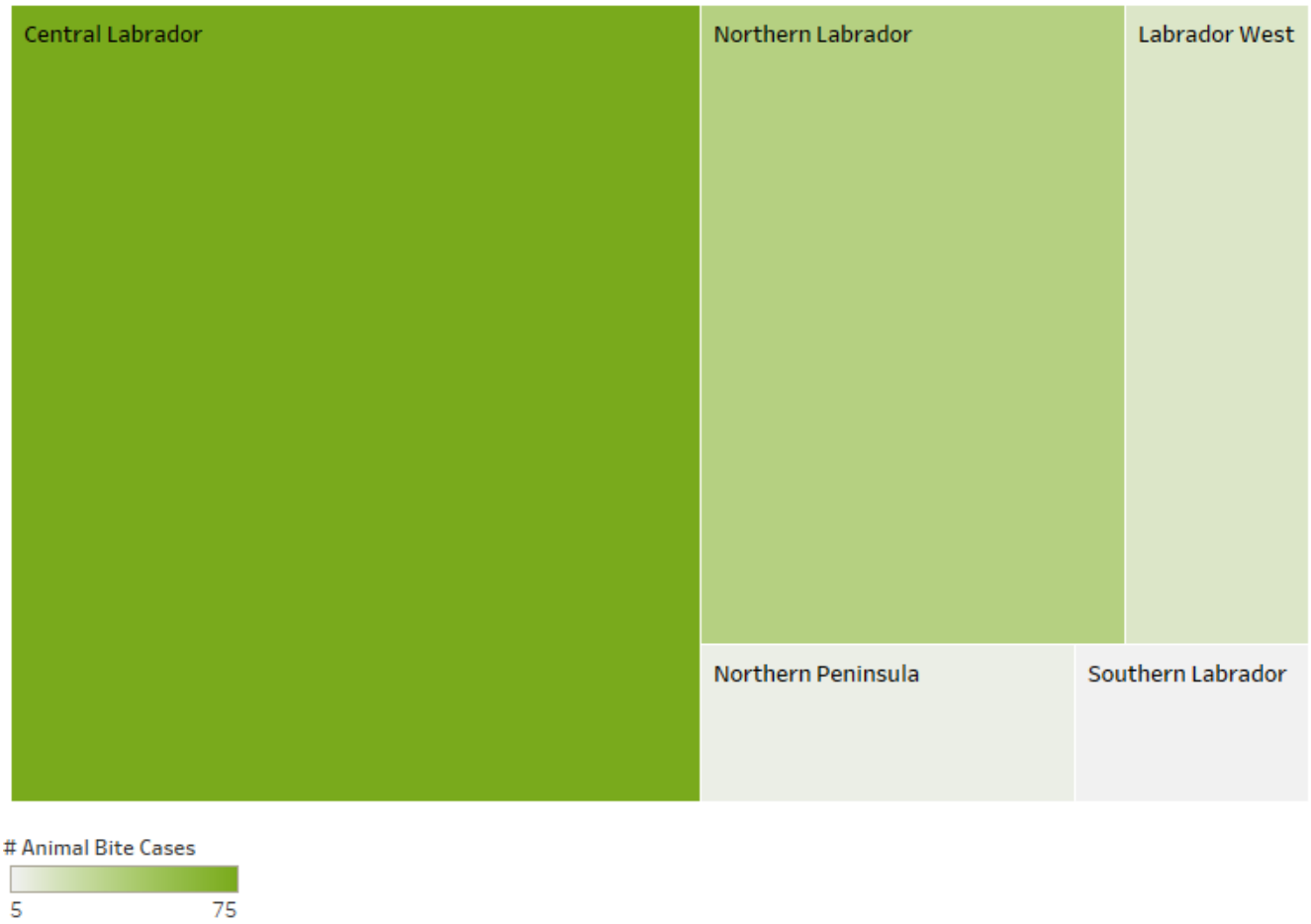


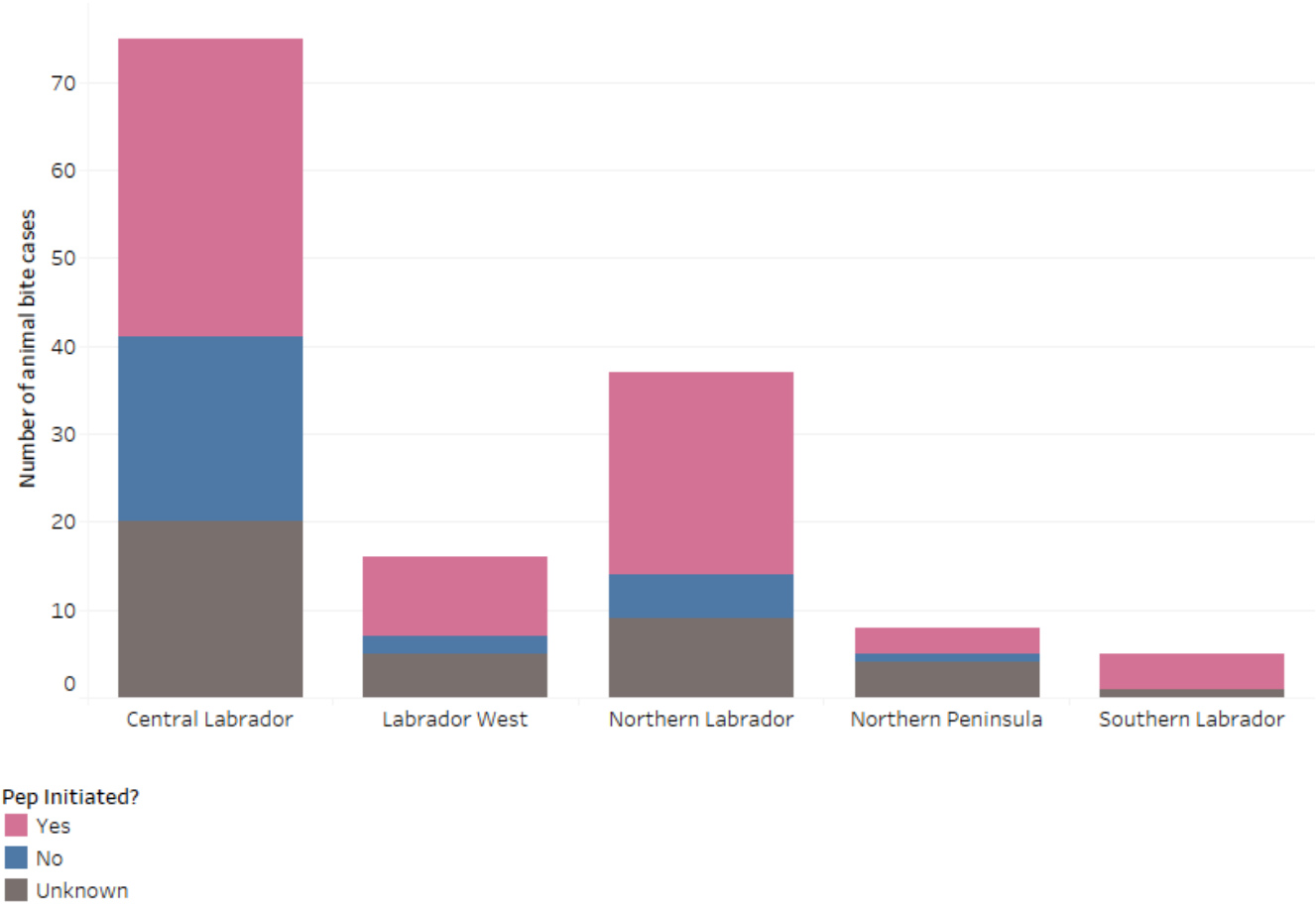
Figure 7 is a tree map with colour intensity and size ranking the geographical sub-regions based on the number of cases where PEP was recommended or likely recommended from 2012 to 2021 (YTD). As the chart illustrates, Central Labrador had the highest number of cases where PEP was recommended (n=75), followed by Northern Labrador (n=37), Labrador West (n=16), Northern Peninsula (n=8), and Southern Labrador (n=5).

Figure 7. PEP Recommended for Animal Bites, by Sub-region, 2012-2021 (YTD)



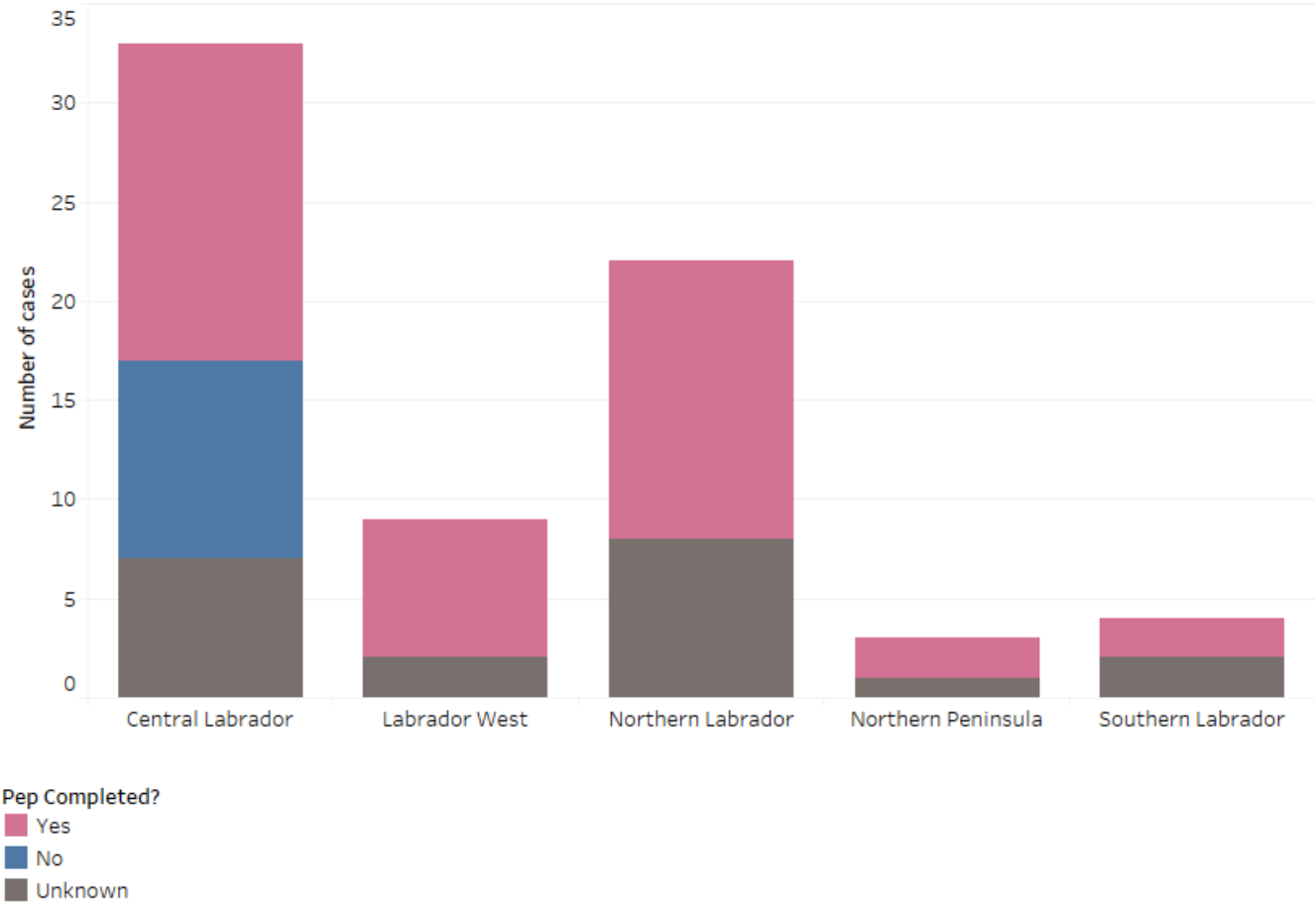
In addition to whether PEP was recommended, the LGH animal bite incident reports also collected data on whether PEP was initiated in cases where it was recommended. Figure 8 depicts the number of cases in which PEP was initiated for each geographical sub-region between the years 2012 and 2021 (YTD). As the figure illustrates, PEP was initiated in 62.1% of eligible cases in the Northern Labrador region (n=23), 45.3% of eligible cases in Central Labrador (n=34), 56.2% of eligible cases in Labrador West (n=9), 37.5% of eligible cases in the Northern Peninsula region (n=3), and 80% of eligible cases in Southern Labrador (n=4).

Figure 8. PEP Initiation for Animal Bites, by Sub-region, 2012 - 2021 (YTD)



Finally, data was also recorded on whether PEP was completed in the animal bite cases where it was initiated. Figure 9 depicts the number of cases in which PEP was completed for each geographical sub-region between the years 2012 and 2021 (YTD). If the incident report did not clearly document whether PEP was completed, the case was marked as "unknown". As the figure illustrates, PEP was completed in 37.8% of eligible cases in the Northern Labrador region (n=14), 21.3% of eligible cases in Central Labrador (n=16), 43.7% of eligible cases in Labrador West (n=7), 25.0% of eligible cases in the Northern Peninsula region (n=2), and 40.0% of eligible cases in Southern Labrador (n=2). It should be noted that in several cases PEP was not required to be completed due to a negative result on animal testing or a lack of signs/symptoms of rabies following an observation period for a domestic animal. For this analysis, such cases were not differentiated from other cases of non-completed PEP in the illustration depicted in Figure 9.

Figure 9. PEP Completion for Animal Bites in the LGH Region, by PHC Zone, 2012 - 2021 (YTD)



Public Health Implications

Although there have been no cases of human rabies reported in the LGH region, there have been several outbreaks of animal rabies in the region since the year 2000. The high incidence of animal bites has become an important public health issue in recent years, with the LGH region averaging between 90 and 100 reported animal bites per year. In 2020, the region saw an increase to 120 reported events. It has previously been estimated that dog bites are responsible for approximately 99% of all human rabies cases in the world. As a result, the World Health Organization highlights the reduction of rabid dog bites as an important area of focus for human rabies prevention campaigns. [1]

Given the recent history of animal rabies cases in the LGH region, bites from unvaccinated dogs typically represent high-risk exposures due to the threat that they may have been exposed to rabies through contact with wildlife. Thus, many dog bite cases in the LGH region require PEP. [6] Although PEP is highly effective and readily available in LGH, it is often not completed. Uncompleted PEP is not uncommon across public health literature, particularly in rural and remote settings. [9] Nevertheless, administration of Rabies PEP, which is estimated to cost almost $3000 per course ($2000 for RIG and $250 per dose of HDCV), constitutes a significant cost to the healthcare system. Furthermore, it is time-sensitive and time-consuming for healthcare professionals and patients.

Although the WHO has advocated for concerted efforts to improve access to PEP globally, it has also highlighted the value of decreasing reliance on PEP by expanding the reach of programs

aiming to vaccinate dogs against rabies and reduce the incidence of dog bites via population control. [10] Controlling dog rabies reduces human exposures to rabies and can be accomplished through periodic dog vaccination campaigns. [11] The WHO recommends recurrent vaccination campaigns covering at least 70% of the dog population to control and potentially eliminate dog rabies in a given region. [12] Although animal population control has long been considered a public health challenge, the Global Dog Rabies Elimination Pathway considers it to be an important aspect of rabies control in domestic animal populations. [13]

In addition to bites, aggressive dogs have other negative impacts on the health of those living in a given community. In particular, they have been noted to deter outdoor play among children as well as walking, jogging, and other forms of outdoor activity among adults. [14,15] It has been noted in the literature that a lack of coordination between animal-control services and health services is a particularly important issue for children in Indigenous communities, who live with a higher risk of dog-bites and a greater likelihood of being injured by a dog. In fact, expert and community stakeholders rank dog bites as a top-10 priority for injury prevention among Indigenous children in Canada. [16] Given that rabies and dog bites are complex but interconnected public health issues, it is important to acknowledge that preventive programs for rabies should include strategies that target vaccination of dogs as well as bite prevention measures.

In addition to health benefits, public health interventions targeting vaccination and population control of dogs could offer considerable economic benefits to LGH. This would be achieved mainly through a reduction in the cost associated with administration of PEP. An analysis of the cost of PEP in five communities in the LGH region for which PEP was initiated most frequently between 2012 and 2021 (YTD), estimates that the total cost of an incomplete courses of PEP (n=26 cases) totaled $58,500 and the total cost of completed courses of PEP (n=32 cases) totaled $96,000, for a grand total of $154,500. Estimates for the total cost of PEP were made based on the number of cases where PEP was initiated, but not completed, and the number of cases where PEP was completed. Based on the assumption that RIG costs approximately $2000 per injection and HDCV costs approximately $250 per dose, an estimated cost of PEP for each community was calculated. These calculations assume that for each case where PEP was initiated but not completed the patient received RIG and one dose of HDCV. For each case where PEP was completed, it was assumed that the patient received RIG and the recommended four doses of HDCV.

Evidently, there are substantial costs associated with administering PEP for communities where it is frequently indicated, initiated, and completed. In planning public health interventions to curb the rate of dog bites and dog rabies, and thereby reduce the cost of PEP, it is important to consider the cost of vaccination and population control measures as well. According to the literature, the average cost of parenteral (i.e., intramuscular) rabies vaccines for dogs is approximately $2.75 CAD per injection, while oral vaccines range in cost from $2.52 to $5.04 per unit. [13] In terms of population control, the cost of surgical sterilization of dogs typically ranges between $25 and $40 CAD, while injectable contraceptives (permanent) cost roughly $15 each, and implantable contraceptives (lasting approximately 2 years) cost between $25 and $75 each. [17]

Recommendations

Following analysis of the animal rabies/animal bite data for the LGH region and consultation with the Chief Veterinary Officer for the province of Newfoundland and Labrador, our team has created a list of three action items moving forward on this issue.

1. Collaboration with community leaders in the regions most affected
   - Moving forward, it will be essential to work with the residents of the communities most

affected by high rates of dog bites and PEP usage to develop appropriate solutions. Dog ownership is a complex sociocultural construct, the meaning of which varies between different regions of the province. Input from community members on the value of any potential public health interventions that may include dog vaccination and population control measures is of utmost importance. It will be important to discuss Indigenous perspectives on dog vaccination and population control with community members and identify leaders within these communities to help facilitate any potential public health interventions.

2. Targeted rabies vaccination initiatives for dogs
   - Through our data analysis, we have identified a number of communities that have both high animal bite rates and high rates of PEP usage. As outlined in this report, there are important health and economic benefits associated with reducing the rate of animal bites in these communities. As per WHO recommendations, any vaccination campaign should aim to provide coverage to at least 70% of the dogs in each of the communities of interest. [13] Previously, the Chinook program has offered veterinary services—including parenteral dog vaccination—to remote and isolated communities in the LGH region on a voluntary basis, free of charge to community members. It would be valuable to work in partnership with a group of veterinarians or veterinary technologists through an initiative such as the Chinook program or Vets Without Borders to facilitate a widescale dog vaccination initiative in the communities with the highest animal bite rates and PEP usage in the LGH region. Given the difficulties associated with travel during the COVID-19 pandemic, there could also be potential for a lay-vaccination program, which would involve training community members to administer vaccinations to dogs. The literature has demonstrated effectiveness for several dog vaccination methods, including fixed locations vaccination, capture-vaccinate-release, door-to-door vaccination, and oral vaccination for free-roaming and inaccessible dogs. A combination of multiple vaccination methods would likely be necessary to cover a sufficient proportion of the dog population in our target communities.

3. Population control measures
   - Through consultation with community leaders in the regions most affected by high dog bite and PEP usage rates, it will be important to consider a number of population control measures, including surgical sterilization, permanent injectable contraceptives, and short-term implantable contraceptive options. Controlling the dog population will help increase the effectiveness of a rabies vaccination initiative, as it will become easier to maintain the 70% coverage recommended by the WHO to control the risk of (and potentially eliminate) dog rabies in the region. This is important given that there will be difficulties associated with keeping track of dogs that have been vaccinated, particularly in communities with a high proportion of stray dogs. Population control measures will also offer value by helping to mitigate the risk of increasing dog bite rates in the years to come.

In summary, moving forward it will be essential to work with the communities in LGH with high rates of dog bites and PEP usage to develop programming that fits the specific needs of their communities, while being attentive to important sociocultural considerations. Public health initiatives targeting animal bites rabies in these communities would offer both health and economic benefits for the region. A number of dog vaccination and population control options

have been outlined in this report. Moving forward, it will be important to develop infrastructure within the LGH region to support not only initial vaccination efforts in the communities of interest, but also re-vaccination efforts on an as-needed basis to meet the recommended vaccination targets as outlined by the WHO.

Technical Notes

Data Sources

Animal Bite Records. Communicable Disease Control Program. Happy Valley-Goose Bay, NL: Labrador-Grenfell Health [cited 2021 April 1].

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Definitions

5-Year Historical Median: Middle value of quarterly counts over the previous 5 calendar years.

YTD: Year-to-Date

Upper threshold: Calculated using the 3rd quartile + 1.5 * interquartile range for each quarter, over the previous 5 calendar years.

Central Labrador: Region located in the Lake Melville area, which includes the communities of Happy Valley-Goose Bay, Sheshatshiu, North West River, and Mud Lake.

Labrador West: Region located in the western region of Labrador, which includes the communities of Labrador City, Wabush, and Churchill Falls.

Northern Labrador: A region spanning the communities along the northern coast of Labrador, which includes the communities of Rigolet, Postville, Makkovik, Hopedale, Nain, and Natuashish.

Northern Peninsula: Region stretching north from Bartlett's Harbour on the western side and Englee on the eastern side, up to the northernmost reaches of the Northern Peninsula of Newfoundland, which includes communities such as St. Anthony, Roddickton, and Flower's Cove.

Southern Labrador: Region spanning the southern coast and straits of Labrador, which includes all communities from Cartwright to L'anse-au-Clair.

Note

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