



ENORTH

The Northwest Territories Epidemiology Newsletter

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Rabies in the Northwest Territories

Part 1: A Historical Overview of Rabies in NWT

*Jill Walker, Medical Student, University of Southampton, England and
Dr. Brett Elkin, Wildlife Veterinarian, Resources, Wildlife and Economic Development*

History

Written descriptions of rabies have been found as early as 3,000 BC in various parts of the world. It is believed to have crossed the Bering Land Bridge 30,000 to 75,000 years ago and settled into Canada's Arctic¹, where the arctic fox became its primary reservoir. Canadian Inuit have historical oral accounts of "crazy foxes" that could transmit disease to the Inuit and their sled dogs. European explorers called it "arctic dog disease". Scientific reports dating back to the early 1900's² note that rabies epidemics in sled dogs followed high incidences of rabies in the arctic fox. In the winter of 1946/47, the virus was officially documented for the first time in three widely separated areas across the NWT. It was conclusively found in fox, dog and wolf specimens. By 1952, rabies was found to be enzootic throughout the entire NWT.³

Overview of Rabies in Canada⁴ (See Table 1, page 3)

Distribution of animal rabies and its host species varies between regions and changes over time. The most commonly affected animal in Canada is the skunk. However, there has never been a documented rabies case of skunk in the NWT. The NWT reports rabies primarily in foxes and dogs. Domestic dog and cat rabies is somewhat low in Canada but because domestic animals are usually the link between wild animals and humans, bites from these species account for the majority of suspected rabies exposures as well as the majority of courses of post-exposure rabies prophylaxis. Official reporting of rabies in Canada began in 1925. Since then, 22 people have died of rabies in Canada. No human cases were reported after 1985 until 2000, when a nine-year old boy in Quebec died after a rabid bat exposure. The NWT has never had a documented case of rabies in humans.

Rabies in the NWT

The arctic fox is the primary, permanent reservoir in the NWT. The red fox was thought to be another major reservoir, but dogs – namely sled dogs – have a higher incidence of positive rabies infection in the NWT. Rabies has also been documented in other wildlife like wolf, caribou and polar bear. In most areas, rabies in humans is directly related to the number of rabid dogs,⁶ the NWT's secondary reservoir. Although there has never been a case of human rabies in the NWT, northern residents living in remote communities and leading traditional lifestyles that embrace hunting and trapping face a relatively high risk of rabies exposure. The vast NWT wilderness is home to a large wildlife population. Although the majority of humans have little direct contact with wild animals, domestic animals kept outdoors year-round may come into contact with a rabid animal and subsequently serve as a link for human exposure. The most common route of exposure for humans is from a bite that allows infected saliva to enter

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Editor's Notes

Jennifer Carey/Janet Hopkins, Managing Editors, EpiNorth, Department of Health and Social Services

This issue of *EpiNorth* addresses a range of topics that relate to health status. Health status encompasses one's physical, mental, social and emotional well-being. Some of the most recent survey results and research data is included here and provide interesting and thought provoking information.

Dr. Kami Kandola, Dr. Brett Elkin, Helmut Epp, Norm Mair, Ryan Mitchell and Jill Walker present a three-part series on the historical overview of rabies in the NWT compared to Canada. The series focuses on wild animal reservoirs and geographic location; analysis of existing rabies data in the NWT from 1978-2004; and GIS mapping of rabies occurrence and species variance – regarding the risk assessment of rabies in NWT based on geography and animal species. This will help health professionals optimize the rabies prevention and control program concerning the prudent use of the rabies vaccine *Imovax*, as Health Canada had announced that a global shortage of this vaccine is expected to last at least until February 2006.

http://www.phac-aspc.gc.ca/tmp-pmv/2004/imovax040421_e.html

Elsie DeRoose, Health Promotion and Team Leader, shares the results and insights from the Healthy School Survey in the first of two articles on Active Living in Schools. The survey, conducted in the spring of 2004, investigated physical activities, healthy eating and nutrition programs and solicited opinions regarding a junk food tax. It also gathered information regarding barriers in these areas, ways to overcome them and produced strategies for improving health in schools.

Miriam Wideman, Health Promotion Consultant, includes an NWT success story about the "Don't be a Butthead – Be Smoke Free" Campaign, how it works, who can get involved and where to get more information about the campaign to encourage our youth to be smoke free.

Wanda White's article on Meningococcal C provides a detailed summary of the mass immunization campaign initiated in March 2004, which provided all children age 1 - 19 with vaccination against *Neisseria meningitidis*. The article provides the positive and negative aspects of the campaign, lessons learned, rates of coverage, as well as an overall regional picture of the resounding success of the campaign.

This time, Health.online identifies a number of websites that provide information, insight and data on some of the determinants that contribute to and impact one's health status. It also highlights links to websites that offer interesting statistics, facts and solutions relating to workplace wellness and quitting smoking.

In this issue Helen MacPherson, Disease Registries Officer provides the Notifiable Diseases Report comparing the data from a yearly perspective from January to December 2003 and 2004.

If you have comments on any of the articles in the *EpiNorth* Newsletter please e-mail us at Epi_north@gov.nt.ca.

Rabies in the Northwest Territories

Continued from page 1

Table 1:
Positive Rabies in Canada⁵: Lab Submissions and Clinical from January 1, 1998 to June 30, 2004

Species	NWT/ Nun	Yukon	B.C	Alb.	Sask.	Man.	Ont.	Qbc.	N.B.	N.S.	P.E.I.	Nfld. Lab.	Total	% Total
Dogs	9	-	-	1	11	24	19	10	-	-	-	1	75	2.8%
Cats	-	-	-	1	8	18	9	-	-	1	-	1	38	1.4%
Bovine (cows)	-	-	-	-	22	71	88	2	-	-	-	-	183	6.8%
Equine (horses)	-	-	-	-	11	13	12	-	-	-	-	-	36	1.3%
Caprine (goats)	-	-	-	-	2	-	2	-	-	-	-	-	4	0.2%
Ovine (sheep)	-	-	-	-	-	2	5	-	-	-	-	3	10	0.4%
Skunks	-	-	4	-	396	664	272	2	9	-	-	-	1347	49.9%
Bats	-	-	88	23	42	8	297	50	4	2	-	3	517	19.1%
Foxes	64	-	-	1	-	10	122	48	-	-	-	26	271	10.0%
Raccoons	-	-	-	-	1	4	132	1	55	-	-	-	193	7.1%
Wolves	2	-	-	-	-	-	4	3	-	-	-	2	11	0.4%
Coyotes	-	-	-	-	-	1	3	-	-	-	-	-	4	0.2%
Badger	-	-	-	-	-	1	-	-	-	-	-	-	1	0.04%
Antelopes	-	-	-	-	1	-	-	-	-	-	-	-	1	0.04%
Woodchuck/ Ground Hogs	-	-	-	-	-	2	1	-	-	-	-	-	3	0.1%
Fisher	-	-	-	-	-	1	-	-	-	-	-	-	1	0.04%
Bison	-	-	-	-	-	1	1	-	-	-	-	-	2	0.07%
Lynx	1	-	-	-	-	-	-	-	-	-	-	-	1	0.04%
Porcine (pigs)	-	-	-	-	1	-	1	-	-	-	-	-	2	0.07%
Bears	-	-	-	-	-	1	-	-	-	-	-	-	1	0.04%
Grizzly Bears	1	-	-	-	-	-	-	-	-	-	-	-	1	0.04%
Total	77	-	92	26	495	821	968	116	68	3	-	36	2702	100.00%

the body. The risk of the development of rabies following an exposure depends on a number of things: bites from terrestrial carnivores are more dangerous than those from herbivores; the more lacerated the tissue, the greater the risk of infection and bites to the head and neck are far more dangerous than ones to the extremities.⁷ Note: People do not usually transmit the rabies virus.

Prevention

The most important step in preventing human rabies is vaccination of domestic animals. Pre-exposure rabies immunization is offered to people at high risk of contact with rabid animals and to travelers to endemic countries where post-

exposure management may not be adequate or available.⁸ People should be educated about rabies and be able to recognize signs and symptoms of dumb and/or furious rabies. Furious rabies presents as fever, acute excitation, convulsions, excessive lacrimation (tearing) and salivation, insomnia, anxiety, and sometimes, maniacal behaviour. Conversely, dumb rabies is characterized by progressive lassitude, coma and death. In both cases the animal will act abnormally, its voice may change, it will stop eating or drinking, start drooling or foaming at the mouth, its hind legs will become weak and the animal will die.

Rabies in the Northwest Territories

Part 2: Rabies Surveillance in Northwest Territories

Ryan Mitchell, Research Assistant, Stanton Territorial Health Authority/University of Calgary and Dr. Kami Kandola, Medical Health Officer, Stanton Territorial Health Authority

Background

The Canadian Food Inspection Agency (CFIA) is the federal agency responsible for rabies control and prevention. The main objective of the CFIA Rabies Program is to prevent rabies transmission from domestic animals to humans. The *Health of Animals Act*, as well as the *Health of Animals Regulations*, the *Reportable Diseases Regulations* and the *Rabies Indemnification Regulations* mandate and regulate the boundaries of the CFIA involvement in rabies control.⁹ The CFIA also works with provincial, territorial and federal jurisdictions to control rabies in wildlife populations.

In the NWT, animals that have or are suspected of having rabies are dealt with according to established policy in the CFIA Disease Control Manual of Procedures. This protocol requires the local health care provider to report all animal bites/attacks to the regional Environmental Health Officer (EHO) and complete the animal bites/attacks investigation form. The Medical Health Officer will then decide on the need for post-exposure prophylaxis and appropriate management of the animal in terms of quarantine or euthanasia.

Methods

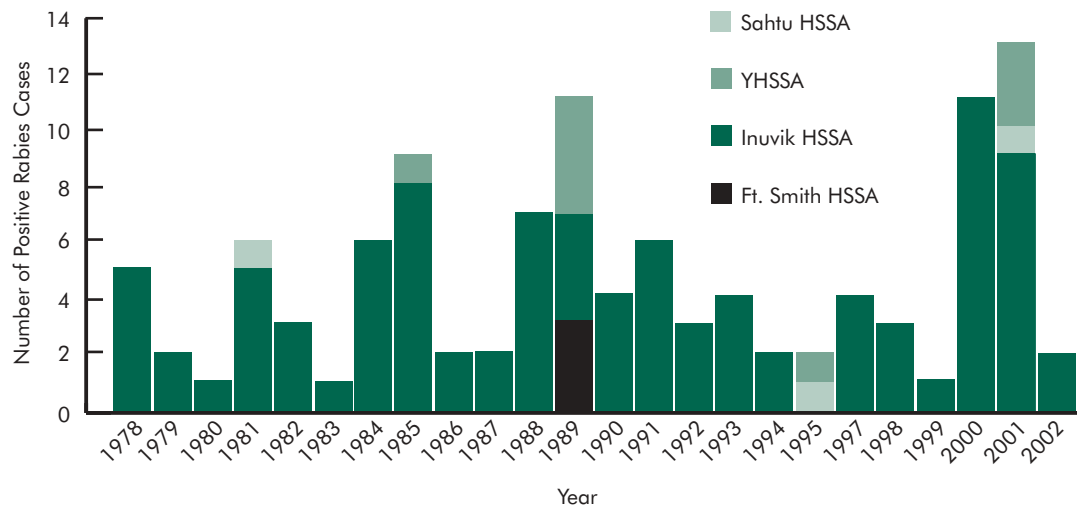
In addition to the CFIA rabies data presented in Table 1, this study utilized surveillance data from two other sources. The first source of data was obtained from Resources, Wildlife and Economic Development's (RWED) Wildlife and Fisheries division and contained surveillance data regarding wild animal attacks entered from 1978 until 2003. In accordance with the CFIA testing policy, if any suspected rabid animal comes in contact with a human or domestic animal, its head should be harvested and sent down to the CFIA laboratory in Lethbridge for analysis. Data from Nunavut (post March 31, 1999) was excluded from the data analysis. The second source of surveillance data was obtained from

Table 2: EHO Animal Bite/Attack Surveillance for 2002-2003

Year	Cases
2002	124
2003	116
Total	240
Animal Species	
Dog	236
Cat	2
Other	2
Quarantined	
Yes	151
No	55
Unknown	34
Post exposure human rabies vaccine required	
Yes	20
No	157
Unknown	59
Recommended	4
Regional Health Authorities	
YHSSA	64
Ft. Smith HSSA	17
Inuvik HSSA	41
Sahtu HSSA	3
Deh Cho HSSA	41
Dogrib HSSA	43
Hay River HSSA	31
Vaccination Status of Animal	
Vaccinated	87
Unvaccinated	61
Vaccination Unknown	92
Animal Destroyed	
Yes	14
No	226
Provoked Attack	
Yes	107
No	119
Unknown	14

the regional EHO's in Inuvik, Yellowknife and Hay River for the years 2002 and 2003. This data is considered live animal surveillance since 93% of animals were not sacrificed. The typical scenario is a domestic animal (usually a dog) biting a human or other domestic animal. If the domestic animal in question is otherwise healthy, it is placed under a 10-day quarantine in order to assess the possibility of rabies infection.

Figure 1: Annual rabies positive submissions per Regional HSS Authority



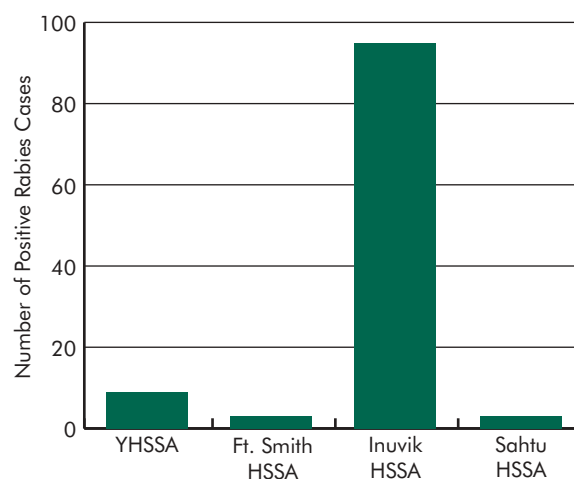
Results

RWED, Wildlife and Fisheries division, submitted 914 suspected rabid animal cases to CFIA and 363 (39.7%) of these cases were found to be rabies positive. Although the domestic dog was the most common submission for CFIA testing, the arctic fox had the highest positive submissions (N=201 vs N=66 respectively). The animal with the third highest number of positive rabid cases was the red fox with 45 confirmed submissions. Results from the EHO animal bite/attack surveillance program implemented in communities throughout the NWT is summarized in Table 2. There were a total of 240 animal bites during the periods of 2002 and 2003. Dogs were responsible for the vast majority of the animal bites, 98.3%.

In Figure 1, rabies submissions from the RWED database were divided into their respective years of origin, excluding the Nunavut geographic region. The majority of the positive rabies cases originated from the Inuvik region (N=95, 86%) where they remained relatively stable, with epizootic cycles every 4 years. During the most dramatic outbreaks in the Inuvik region, a spillover of cases appeared in the Yellowknife region (N=9, 8%).

All positive rabies submissions were further disaggregated into their respective NWT regional HSS Authorities, excluding Nunavut geographical areas. (Figure 2) When the odds of exposure to a rabid animal were calculated per region, it was determined that the Inuvik region, when compared to all other regions (excluding Nunavut), had a significantly higher odds ratio of 11.5 (p<0.005) for rabies exposure.

Figure 2: Total positive rabies cases per Regional HSS Authority.

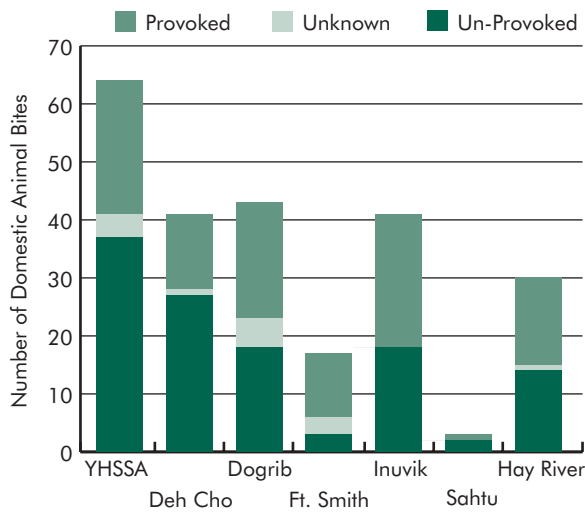


Rabies vaccine supply is expected to be limited in Canada until early 2006 due to a shortage of Imovax® Rabies vaccine. A limited supply is available upon request.

A Directive regarding the appropriate use of the Rabies Vaccine was issued by the Office of the Chief Medical Health Officer January 27, 2005.

The Directive is available online: www.hlthss.gov.nt.ca/News/announce/pdf/directive_rabies_vaccine_jan2005.pdf

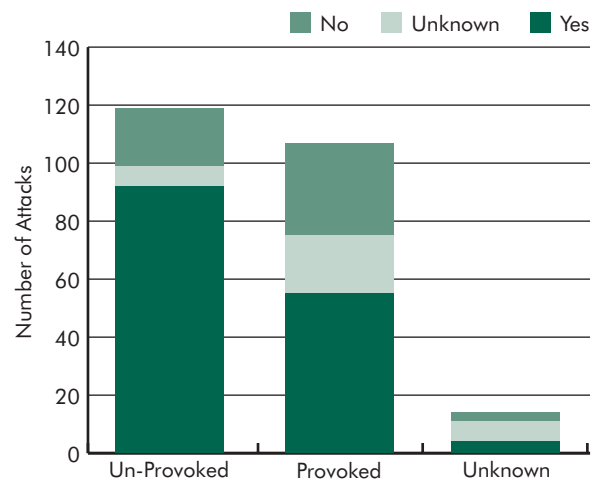
Figure 3: Number of animal attacks per Regional HSS Authority.



Using the EHO animal bite/attack surveillance database for 2002-2003, the number of overall bites/attacks were aggregated into their respective Regional HSS Authority in order to examine areas with high exposure to dog bites. (Figure 3) The largest number of domestic animal bites occurred in the Yellowknife jurisdiction (N=64, 26.7%). The second largest region for domestic animal bites occurred in the Dogrib region jurisdiction (N=43, 17.9%). However, the Deh Cho region had the largest proportion (66%, N=27) of domestic animal bites arising from unprovoked circumstances and the Yellowknife region a close second with 58% (N=37) of its attacks considered unprovoked. The Sahtu had 67% (N=2) domestic animal bites from unprovoked situations, but due to the low number of submissions, this finding is not significant.

The vaccination status of the animal was also recorded in the database. Using this data it was possible to compare the vaccination status of the animal with the type of attack. (Figure 4) The results indicate that only a slight majority of the animal bites, 49.5%(N=119), were unprovoked. Of this proportion, 24% (N=29) of the animals were not vaccinated, 34% (N=40) of the animals were vaccinated, and 42% (N=50) of the animals had an unknown vaccination status. Regarding provoked attacks (N=107), 25% (N=27) of the animals were not vaccinated, 41% (N=44)

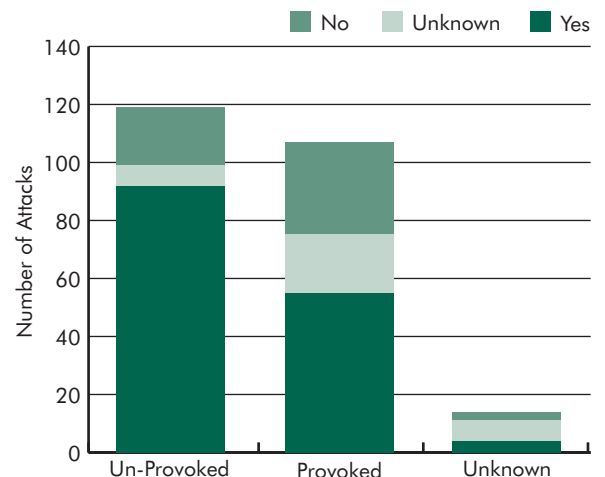
Figure 4: Animal attack type with regard to vaccination status



of the animals were vaccinated, and 34% (N=36) of the animals had an unknown vaccination status. There were a total of 14 cases (5.8%) where the type of attack could not be determined.

The type of attack was compared to the status of the animal after the 10-day quarantine: 30% of the provoked animals were not quarantined for the required 10-day period; 51% were quarantined for 10 days; and 20% of the animals had an unknown isolation status. Of the unprovoked attacks, 77% of the animals were quarantined for the required 10-day period but another 17% did not undergo the required isolation period. (Figure 5)

Figure 5: Attack and quarantine status of animal attacks



Rabies in the Northwest Territories

Part 3: Geographic Information Systems (GIS) and Rabies in the NWT

*Norm Mair, Geospatial Analyst, Resources, Wildlife and Economic Development and
Helmut Epp, Manager, Resources, Wildlife and Economic Development*

Geographical Information Systems (GIS):^{10,11}

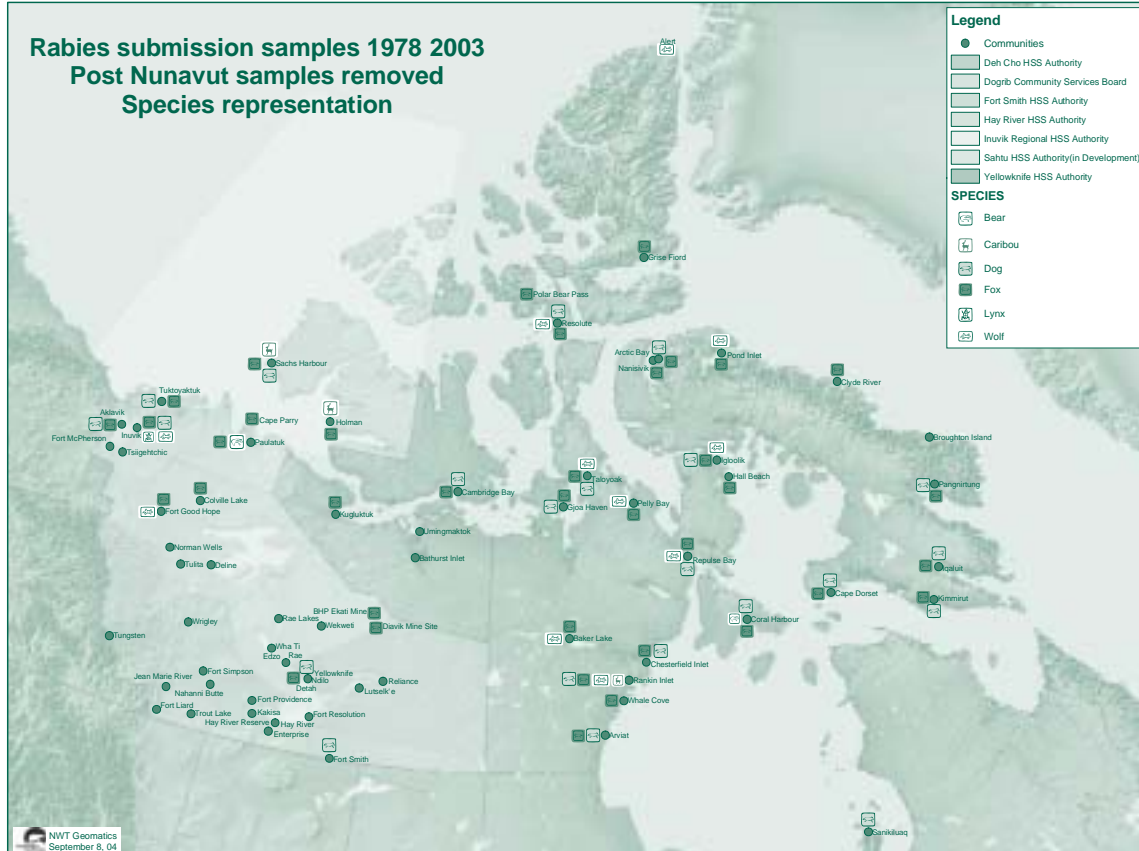
GIS consists of specialized software that allows geographic information to be displayed in a graphic form such as maps or images. Public health professionals use GIS to better understand geographic relationships that affect population-based health outcomes. GIS have been referred to as decision support systems. With the ability to analyze and present complex digital data in an easily understood and intuitively visual format, GIS are especially useful in the management of complex outbreak situations. Often data displayed, in geographically referenced visual format, highlights trends or patterns not noticeable in tabular format. Dr. John Snow,

who in the mid-1800's visually mapped the deaths from a cholera outbreak and identified the well from which people were being infected, provides an early example of such a solution.

Past work with GIS and rabies mapping

The *Rabies Reporter*¹², a scientific newsletter about current issues in rabies research and control, is a joint effort of the Rabies Research Unit, Ontario Ministry of Natural Resources; Canadian Food Inspection Agency; the Ontario Ministry of Health; and the Geographic Information Systems Laboratory at Queen's University, Kingston. The *Rabies Reporter* offers online mapping of all positive rabies cases submitted to the CFIA

Map 1: Geographic and Species Variation in Positive Rabies Cases in Northwest Territories 1978-2003



database. Other Canadian provinces and US states have their own specialized units to study and track rabies, primarily bat and raccoon strains, in their jurisdictions. Currently there are two studies being conducted in Nunavut: the Karrak Lake arctic fox project and another tracking the migration paths of foxes using DNA to improve targeting of oral rabies vaccination programs.¹³ In order to visualize the coverage of rabies throughout the NWT, GIS mapping of the RWED surveillance data was conducted using ESRI ArcGIS 8.3 software¹⁴ to show species variance per geographic location. (Map 1) The arctic fox was the most common species represented, especially for the Inuvik and Nunavut regions which lie mainly within the tundra.

Conclusions: Dr. Kami Kandola

- Guidelines on rabies immunization, both for pre-exposure and post-exposure prophylaxis, should follow Health Canada standards as outlined in the Canadian Immunization Guide (6th ed, 2002).
- With respect to the NWT, it seems appropriate to suggest that those in high-risk environments such as northern climates (above the tree line) with denser arctic foxes populations, would benefit from more aggressive vaccination programs, including pre-exposure prophylaxis for humans – wildlife officers, dog mushers, hunters, trappers and miners – engaging in prolonged outdoor activities.
- Given the current human rabies vaccine shortage, better dog control and improved annual animal vaccinations, to begin no later than November, must be emphasized. Domestic animals are a common vector for human transmission of the virus, particularly sled dogs that live outdoors on the periphery of the isolated arctic communities.
- Improved reporting and submissions of animal bites/attack investigation forms to the regional Environmental Health Officer (EHO) should also be stressed, especially in high-risk regions.

- Oral rabies vaccine has worked in other parts of Canada and Europe for fox and raccoon control and should be considered^{15,16} in the NWT.

With the implementation of an efficient, multi-pronged rabies prevention control program, the risk of rabies-related health complications could be significantly reduced in the NWT without taxing the limited supply of the rabies-specific human diploid cell vaccine.

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NWT Healthy Living School Survey – Key Findings

Elsie DeRoose, Health Promotion Team Leader, Department of Health and Social Services

In the spring of 2004, a school survey¹ was conducted in the NWT to obtain information about physical activity and food choices.

The data is intended, in part, to be used in the development of an active living and healthy eating strategy and communications plan for the promotion of healthy lifestyles.

The findings are based on an 88.0% response rate, with 44 of 50 K-12 NWT schools participating in the survey. Ninety-three (93%) percent of the surveys were completed by school principals. The survey was administered online to all schools in the NWT. A detailed methodology can be found in the survey report¹.

The following information summarizes current programs, policies and observations about two key areas of health promotion affecting children and youth: active living and healthy eating. Previous issues of *EpiNorth* described issues related to the effects of sedentary lifestyles and poor eating habits on health and school performance.^{2,3}

Part 1: A School Active Living Snapshot

Part One of the survey requested information about currently existing school physical activity programs and policies. Survey questions focused on physical activity promotion, physical education guidelines, fitness of children compared to a decade ago, and ideas to improve physical activity. Highlights are described below.

Physical activity promotion:

Schools reported that the activities promoting regular physical activity the most were: extracurricular activities (28.2%), before/after school activities (22.1%), traditional games/outings (18.3%), and special activities, such as fitness classes or weekly indoor games (14.5%).

School Guidelines for Physical Education:

Ninety percent of school personnel who responded to this question reported that their school meets current NWT physical activity guidelines (90 hours per year or 1.7 hours per week). The most commonly reported barriers

to be able to meet these guidelines included either not enough time in the day or lack of a school gym.

Perception of activity compared to 1993:

About 52% of respondents felt that students are less active than they were 10 years ago, though 46.5% were not sure if they were or not. Few mechanisms exist in the NWT to routinely test physical fitness levels or activity of this age group.

Increasing physical activity to 60 minutes per day:

Several suggestions were provided when respondents were asked for ideas to increase physical activity, as recommended by Health Canada⁴. These are listed in order of number of times suggested:

- increase support for more physical education/activity programs (19.7%),
- increase support from parents and/or the community (19.1%), and
- increase support for teachers regarding the use of the physical education curriculum/active living programs (16.2%).

Participants were also asked what in their view would contribute most to an increase in physical activity. Regardless of location, results were almost identical (See Table 1, page 10). The only difference in ranking was from the 'southern NWT'. This 'region' recommended traditional games as an additional way to increase physical activity.



Table 1: Increasing Physical Activity: Top Three Suggestions from Schools

Improving Physical Activity	*Northern NWT	*Southern NWT	*Yellowknife	Overall Rating
Parent/community support	1st	1st	1st	1st
More PE/activity programs	2nd	2nd	2nd	2nd
Support for Teachers	3rd	-	-	3rd
Full-time PE teachers	-	-	3rd	-
Traditional games	-	3rd	-	-

* For the purposes of data analysis, the NWT was divided geographically as follows: Northern NWT = all communities in the Inuvik and Sahtu Health and Social Services Authorities (11 schools); Southern NWT = all communities in the Deh Cho, Dogrib, Fort Smith and Hay River Health and Social Services Authorities/Boards, plus Dettah and Ndilo (17 schools), and, City of Yellowknife (11 schools).

Section 2: NWT School Food Programs and Policies Snapshot

Section 2 of the survey asked principals about their school food programs and policies. Results are based on responses to each question from all participating schools. Topics covered included types of food programs offered; food policies; positive and negative factors that affect healthy eating; and opinions about the concept of a junk food tax in the NWT. Highlights are reported below:

Programs and Policies that promote healthy eating and nutrition:

Eighty-four (84%) percent of respondents indicated their schools offer programs that promote healthy eating and nutrition. The most common types of programs offered were: healthy snacks (21.0%), use of the NWT curriculum (16.1%) and breakfast programs (14.5%). Twenty-seven schools (61.4%) reported that they have a school food policy in place. Most school food policies address the issue of junk food, (i.e. discouraging junk food in the school). Approximately 33% of schools reported that junk food was the *specific* issue of their policies.

Observable differences as a result of school food policies:

Twenty-two (88.0%) percent of the 25 individuals who responded to this question felt that their policies make a difference. Primarily, school

personnel have observed that students bring less junk food and more healthy snacks or lunches to school. Those who indicated that the policies have not made a difference reported that: parents still provide highly processed foods in children's lunches, students bring junk food in anyway, and some parents don't "buy into" the policy.

Influencing factors in the promotion of healthy nutrition:

The most common response to *positive* influences was nutrition education – either provided by health professionals (22.1%), teachers/staff (18.9%) or parents (12.9%). Four major barriers to healthy nutrition were identified as: social issues, parents' lack of knowledge about nutrition, lack of interest, and a lack of healthy food at home.

Principals were also asked to provide a list of the top *three* barriers to healthy nutrition. Broken down by geographic region, the top barriers are described in Table 2. Two geographic regions in the NWT identified social issues as the number one barrier, whereas in Yellowknife, media influence was described as the greatest barrier.

Solutions to overcome barriers most often suggested were: increased parent education (28.9%), increased student education (15.6%), and more funding for programs (13.3%). The most frequently mentioned ways to generally improve healthy lifestyles within the schools

Table 2: Top Three Barriers to Healthy Nutrition Promotion in Schools

Barriers	Northern NWT	Southern NWT	Yellowknife	Overall Rating
Social issues	1st	1st	-	1st
Media influence	-	-	1st	-
Parents Lack of Knowledge	2nd	2nd	3rd	2nd
Parents Lack of Time	-	-	2nd	-
Lack of Healthy Food in the House	3rd	3rd	-	-
Lack of Interest	-	-	-	3rd

* For the purposes of data analysis, the NWT was divided geographically as follows: Northern NWT = all communities in the Inuvik and Sahtu Health and Social Services Authorities (11 schools); Southern NWT = all communities in the Deh Cho, Dogrib, Fort Smith and Hay River Health and Social Services Authorities/Boards, plus Dettah and Ndilo (17 schools), and, City of Yellowknife (11 schools).

were to: offer ‘fun’ activities for students (20.0%), support from parents and community members (17.1%), and positive role models (14.3%).

Junk food tax:

Some American states have applied an additional tax to food of little nutritional value. This survey asked a final question about whether or not such a tax would be effective in the NWT. There were 39 responses to this question. Fifty-one percent (51.3%) of these responses did not feel the tax would be a disincentive. Responses included:

“Buying healthy food is expensive. Food low in nutritional value is cheap. Taxing ‘junk food’ would hurt lower income families even more.”

“I think people who choose to eat junk food will continue to do so despite the cost (rather like those who smoke).”

On the other hand, 30.8% of respondents felt that a tax might be effective, and another 17.9% indicated that a tax could possibly be effective. Responses included:

“Yes, if the surplus from this tax would be allocated to healthy initiatives, resources, promotions, etc.”

“The tax would not impact on the amount of junk food purchased, but the tax dollars collected could be used to educate people on healthy eating.”

The next issue of *EpiNorth* will include a follow-up article about the range of activity being done to improve healthy eating and active living, such as NWT School Nutrition Council activities and other various projects and programs that hope to make a difference, either by improving physical activity or healthy eating, or both. Certainly, several programs are collectively trying to stem the tide of increasing obesity rates among our children and youth. Such upstream approaches are needed to reduce rising costs of treatment for preventable illnesses as well as improvement in quality of life.

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ACKNOWLEDGEMENTS

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4 Major Barriers To Healthy Nutrition

- Social issues
- Parents lack of knowledge about nutrition
- Lack of interest
- Lack of healthy food at home

Mass Meningococcal Campaign in the NWT

Wanda White, RN BSN MHS, Communicable Disease Specialist, Department of Health and Social Services

The Northwest Territories (NWT) Meningococcal C immunization program was initiated in March 2004 following the death of a 15-year-old girl in December 2003 from meningococemia and a case of invasive Meningococcal disease in a 2 month-old child in February 2004. Nine thousand nine hundred and twelve (9,912) Meningococcal vaccines were given during the initial mass campaign that targeted children and youth between the ages of 1 to 19. In addition, an infant Meningococcal Immunization Program was implemented in the fall of 2004.

Neisseria meningitidis is a Gram-negative, diplococcus that is usually associated with asymptomatic nasopharyngeal carriage, but on occasion causes conjunctivitis, septicemia, meningitis, septic arthritis and pneumonia. Severity of cases ranges from occult bacteremia to a fulminant and fatal disease. *Neisseria meningitidis* causes sporadic cases and outbreaks of invasive Meningococcal disease (IMD) in Canada at a rate of one per 100,000 populations with the greatest

Table 1: Target Populations

Vaccine to be administered: Completed

Phase 1:

14 - 19 Years olds including youth in youth facilities, such as, group homes and young offenders March 2004

Phase 2:

5 year old to 13 years old May 2004

Phase 3:

Ages 1 to 4 years olds June 2004 ongoing due to low rates

For young persons who were no longer in school, an open invitation to be immunized was extended through the media and/or community announcements.

disease burden in children <5 years of age, with a peak incidence at 6 to 24 months of age (NACI, 2001). Serogroup C disease often occurs in outbreaks with peaks of incidence in children younger than five years of age and in adolescents from 15 to 19 years of age. Serogroup C disease has been associated with a higher rate of septicemic disease and a higher fatality rate,

particularly among adolescents. Of additional significance, the incidence in northern aboriginal populations is higher than in other parts of Canada, (Butler et al., 2000; International Circumpolar Surveillance (ICS): 1999 Summary Report). Studies consistently report a higher risk among aboriginal people for bacteremia and meningitis caused by *Neisseria meningitidis*, *Haemophilus influenzae* type b and *Streptococcus pneumoniae*.

In the previously mentioned two cases of Meningococcal C disease in the NWT, there were no known contact identified between the affected individuals but much travel was documented between the two communities. These were also the first cases of Meningococcal disease over the previous five years. The decision to implement a universal program was also influenced by the fact that the bacterial strain in the NWT was identical to one that had caused recent outbreak activity in other provinces, such as Alberta, British Columbia, Quebec, and Ontario. The Canadian Pediatric Society and the National Advisory Committee on Immunization have both recommended a universal Meningococcal vaccine program for some time. The US, UK, Alberta and Quebec had already put similar programs in place. The purpose of the program in the NWT was to decrease the number of cases and severity of meningitis and related diseases.

Evaluation

The overall purpose of the evaluation was to:

- provide information about implementation, effectiveness, organizational and community impact of this program, and
- document and measure factors essential to the effectiveness of the program as it was delivered throughout the NWT.

This information can be used to assess program effects, to help refine the program intervention and to support the replication of successful program components in future campaigns.

The primary source of data was through:

1. A four-question survey conducted by The Health Protection Unit that was distributed to selected health centres in July 2004. Two communities were chosen at random in each NWT region. The survey was sent to the Nurse-in-Charge in these health centres.
2. Ongoing feedback was also gathered via weekly regional and territorial teleconferences throughout the campaign.

Results

Questionnaires were received from 9 (75%) of the 12 selected health centres in the NWT. The results of the questions on the survey are summarized below.

Presentation of the Campaign

All 9 health centres responded to the question regarding if they liked the way the Department of Health and Social Services presented the campaign. Six (67%) said they liked the campaign presentation, while three (33%) did not like the way in which the Department presented the Meningococcal C Campaign. Some of the responses are as follows:

- It was noted that a majority of the health centres felt that the time frame from when the decision was made and the time the campaign was implemented was very short.
- One health centre stated that the teamwork resulted in getting the information packages together and resource materials out to the communities quickly.
- As well, the information for parents' handouts was mentioned as being a good source of information.
- Another nurse stated that they received little in the way of information, just the go-ahead on the clinical guidelines.
- One responder also stated that as more information became available the campaign progressed rapidly.

Positive Aspects of the Campaign

There were many positive findings in this evaluation. Health care providers were able to draw on experience from previous immunization

campaigns. The positive aspects reported are as follows:

- the team-work shown in getting together the information packages and resource materials;
- campaign media coverage;
- financial support from the Department both for vaccine and program support costs, allowing additional staff to be hired to assist with the massive immunization strategy;
- information documents were made available in a timely fashion;
- increased public awareness regarding meningococemia and the importance of vaccinations;
- adding the public information print to media reports, and constant clarification of information; and
- partnerships with schools and other organizations were strengthened with the campaign.

Problems with the Campaign

Throughout this campaign the problems identified were:

- The short time interval from decision to initiating the mass campaign and the implementation of the program.
- Some health centres stated that there was too little time to promote the vaccine in the community and do parent education.
- Another health centre noted that the duration of the media coverage could have been longer to also cover the initiation of the infant vaccine program in the fall of 2004.
- Additionally concerns were raised about the announcement of the immunization program, since the public was informed before the proper supplies (i.e. vaccine) were in place.
- As well, the Meningococcal Campaign coincided with another immunization program, the 2nd round of influenza vaccine.
- One health nurse mentioned that – adults felt they should have been immunized against meningitis, as well.

The dedication and hard work of the NWT's community and Public Health nurses made the Meningococcal Campaign a resounding success.

- Another nurse mentioned that at a grass roots level, there was poor staffing in some health centres, and unclear guidelines could have caused initial problems.

Future Campaigns

All 9 health centres responded to the question regarding if they would do anything differently in another mass campaign. Five (56%) said they would do another campaign differently, while 4 (44%) would keep the campaign as it was.

Suggestions for future campaigns were:

- Additional staff should be made available at the beginning of mass immunization campaigns.
- Nurses be given more time to do school and community information sessions prior to implementation of another mass campaign.
- Media coverage should be continued 1-2 months after initial announcements.
- Increase the use of pictorial information with the use of cartoons when children are involved in a mass immunization campaign, since the target group were children age 1 through 19.
- At one point in this campaign the vaccine supply ran out; in future campaigns a consistent supply of vaccine should be ensured.
- Consistent clear guidelines should be made available to all staff prior to the start of a campaign.

Discussion

The vaccination of an estimated 13,000 young people over a three-month period required regional/community public health programs devote most of their resources to the mass campaign. Obtaining supplies, educating staff, developing and distributing educational materials, getting consents, coordinating vaccine clinics with the schools, giving the vaccine, record keeping, and answering questions from students, parents/guardians and the public took time. Below are additional comments received throughout the campaign.

Arctic Winter Games were held February 29th to March 6th 2004, and pressure was put on the system to immunize all of these participants two weeks prior to departure. The demand to have these students immunized right away sent a mixed message to the public health system. The campaign was promoted as a proactive measure to prevent disease in the future, but this urgency sent the message that there was a need to prevent an anticipated outbreak and the system had to “react” to this threat immediately. Reaching the pre-school population was difficult. Yellowknife public health nurses noted this age group is not a “captive audience” and had to rely on advertising of special clinics and parent’s willingness to follow-up and make appointments. This resulted in low coverage rates for this target population in most Regional HSS Authorities (see Table 1).

Phone calls from anxious parents increased dramatically, requests to have children vaccinated at the clinic to meet parents schedules was extremely difficult to accommodate with this volume. Well Child Clinics and regular school immunization programs were delayed significantly, and school health education programs were suspended. Other difficulties reported were attributed to the fact that the campaign stretch over two fiscal years and ordering vaccine and billing did not coincide with the allocation of funding. The latter problem became an issue. The estimates for the number of doses required were submitted to the regional pharmacies and it was to be ordered in full. One pharmacy in particular did not order the vaccine without having existing orders from the health centres, since they did not want to warehouse the product. This resulted in last minute urgent orders from the field, which resulted in lack of vaccine to complete the clinics.

Lessons-Learned:

Given the results of the survey, the following are key lessons learned from the Meningococcal C Campaign.

- Need to clearly communicate the reason for the campaign, specifically clarify what

Table 2: Summary of Meningococcal Vaccine Campaign November 2004

Health and Social Services Authority	Phase	Total Eligible	Vaccinated	% Vaccinated
Dogrib	Phase 1 (ages 14-19)	-	-	100%
	Phase 2 (ages 5-13)	-	-	77%
	Phase 3 (ages 1-4)	-	-	34%
	DCSA Total	1046	831	79%
Deh Cho	Phase 1 (ages 14-19)	-	-	86%
	Phase 2 (ages 5-13)	-	-	85%
	Phase 3 (ages 1-4)	-	-	94%
	DHSSA Total	893	744	83%
Hay River	Phase 1 (ages 14-19)	-	-	89%
	Phase 2 (ages 5-13)	-	-	90%
	Phase 3 (ages 1-4)	-	-	87%
	HRHSSA Total	1280	1141	89%
Fort Smith	Phase 1 (ages 14-19)	-	-	91%
	Phase 2 (ages 5-13)	-	-	72%
	Phase 3 (ages 1-4)	-	-	51%
	FSHSSA Total	786	576	73%
Inuvik	Phase 1 (ages 14-19)	-	-	76%
	Phase 2 (ages 5-13)	-	-	79%
	Phase 3 (ages 1-4)	-	-	42%
	IRHSSA Total	2438	1725	71%
Sahtu	Phase 1 (ages 14-19)	-	-	81%
	Phase 2 (ages 5-13)	-	-	87%
	Phase 3 (ages 1-4)	-	-	62%
	SHSSA Total	810	667	82%
Yellowknife	Phase 1 (ages 14-19)	-	-	83%
	Phase 2 (ages 5-13)	-	-	83%
	Phase 3 (ages 1-4)	-	-	44%
	YHSSA Total	5,892	4,228	73%
All Communities	Phase 1 (ages 14-19)	4,217	3,180	75%
	Phase 2 (ages 5-13)	6,475	5,520	85%
	Phase 3 (ages 1-4)	2,476	1,212	49%
	Total	13,168	9,912	75%

is being done for outbreak control purposes, and what is to prevent future disease activity.

- Adjust timelines with the specified purpose.
- If the campaign is not for the purposes of outbreak control, spend more time in the planning phase and ensure that public

and health care provider notification and education is complete, consult with all relevant partners, and acquire and allocate resources to decrease unnecessary disruptions.

- Consider all community activities when planning and ensure vaccination occurs in

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Don't Be a Butthead campaign proves popular

Kathy Fibish Mecure, Tait Communications

The success of the Department of Health and Social Services *Don't Be a Butthead – Be Smoke Free* campaign is surpassing expectations.

The campaign was launched in May of 2004 and is aimed at youth aged 8 to 14. Through the character "Butthead", youth learn facts about smoking and health, hear stories of role models and people affected by tobacco, and are challenged to make a commitment to be smoke free.

The campaign is based on social marketing strategies backed by research indicating that if a person makes a public commitment to change a behaviour, he/she is more likely to keep this promise.

The Challenge to Be Smoke Free

Key to the campaign is "The Challenge to Be Smoke Free". Youth are asked to strengthen their resolve to continue to be smoke free, and to start thinking about themselves as non-smokers for life by making a public commitment to be smoke free. "The Challenge to be Smoke Free" recognizes and rewards youth for making this commitment.

Here's how it works:

- Youth learn about the effects of smoking, through the "Don't be a Butthead" materials, CD ROM, website, youth events, in schools and through advertising.
- Youth are invited to fill out a commitment card solidifying and publicizing their commitment. A parent or guardian is asked to support that commitment by also signing the commitment card.
- Those returning a commitment card are given a "Don't Be a Butthead" t-shirt and certificate, either through the mail, at school, or from a community leader.
- They are also noted in an advertisement in News/North so the community can support their commitment.
- Committed youth are entered to win either a sports package or an electronics package, valued at over \$1000 each. Prizes will be awarded in January 2005 and May 2005.

Campaign elements

An interactive display was taken to community and youth events throughout the summer, and will continue at community events for the duration of the campaign. At the display, people can peruse a CDROM version of the www.dontbeabutthead.ca website, commit to be smoke free, and win prizes. This display is also available for schools and communities to use at public gatherings of youth or adults.

- The website, www.dontbeabutthead.ca, presents facts about smoking and its effects, and encourages youth to commit to be smoke free.
- Smoke-free youth role models, reformed smokers and those still struggling with the habit are highlighted in a video featuring northerners talking about their experiences with tobacco.
- Movie trailers ran in NWT movie theatres from July to September 2004, encouraging people to be smoke free, and directing youth to the website.
- Newspaper advertising and a brochure mail drop to every household in the NWT were released in September, encouraging parents to talk to their children about smoking, even if they are smokers themselves. This adult campaign is supported by radio advertising in 7 languages (Dogrib, Gwich'in, North Slavey, South Slavey, Chipewyan, English and French,) and will run to the campaign's end in June 2005.

School Challenges

With the school year underway, schools are being encouraged to bring the “Don’t Be a Butthead – Be Smoke Free” campaign into their classrooms. A teacher kit has been developed to help schools connect with the campaign, and to initiate “The Challenge to Be Smoke Free” in the classroom. The kit includes everything the school needs to implement a school challenge between classrooms, other schools in their community or even regionally.

Over the course of the school year, campaign organizers are planning school visits with school principals and teachers and, at the same time, presentations on the “Don’t Be a Butthead” initiative to each school in the NWT.

A toll-free telephone line, 1-888-353-0338, is available for more information, to order supplies or to book a school visit. In addition, an electronic bulletin, called the “Smoke Free Updater” are emailed monthly to keep educators, front line health workers, recreation leaders and other supporters abreast of what’s happening with the campaign.

Health Centre Support

Health centre staff, especially CHRs with their primary health promotion function, should be actively involved in this campaign. Here’s how health centres can support the Butthead initiative:

- Display the Butthead poster and pamphlets on talking to your child about tobacco at the health centre.
- Encourage your local school to implement a school challenge.
- Assist your school by promoting the challenge in classrooms.
- Work with community leaders to publicly recognize youth who have made the commitment.
- Request a community kit which contains ideas for promoting the campaign.

An NWT Success Story

Since it was launched in May of 2004, the *Don’t Be a Butthead – Be Smoke Free* campaign has proven very popular with youth of the NWT. More than 1300 people have made the commitment to be smoke free. Since the total is already well over the initial goal of 500 commitments, the bar has been raised to 1500 commitments.

As the campaign has moved into schools, and with the release of complementary tobacco lessons and activities for the grades 3 to 9 health curriculum, the campaign has reached a momentum that is building upon itself. Campaign developers are confident this number can be reached.

As a condition of funding through Health Canada’s Tobacco Control Program, an evaluation framework has also been developed and regular reporting is provided as part of the program cycle.

While the ultimate goal of this campaign is to create a generation of smoke free youth in the NWT, the path is long and much lies ahead. But with one step at a time and the continued support and participation of teachers, health professionals and community leaders like yourself, the goal may well be achieved.

The *Don’t be a Butthead* campaign is an initiative of the Department of Health and Social Services. Tait Communications operates the campaign on behalf of the Department.



HEALTH .online Healthcare and the Internet

Deb Bain, Previous Managing Editor, EpiNorth, Department of Health and Social Services

Social and economic factors, demographics, environment, personal characteristics, habits and activities all influence one's health. The World Health Organization defines health as a complete state of physical, mental, social and emotional well-being: a definition that promotes a holistic and integrated approach to health.

Our health is influenced not only by personal behaviors such as smoking, drinking and physical activity, but also by situations at home, at work and in the community. The GNWT's health promotion strategy encourages a proactive and preventative approach to health and promotes healthy choices and personal responsibility by providing information that enables individuals to make informed decisions about their long-term health.

Studies reveal that there are a number of benefits to having healthier employees, including: improved stress management, increased productivity, reduced absenteeism and lower health care costs. Health Canada's Active Living at Work site, www.activelivingatwork.com, presents the benefits of physical activity at work, summarizes the research done on the topic and identifies the types of wellness programs offered. It also presents a business case template to assist organizations interested in developing and implementing workplace fitness activities. The Canadian Council for Health and Active Living at Work, www.cchalw-ccsvat.ca is another resource for workplace wellness ideas including the stairway to health project which encourages employees to use the stairs more and the elevators less.

Health Canada's Guide to Physical Activity, www.hc-sc.gc.ca/hppb/paguide, recommends 60 minutes of physical activity a day. This may be easier to accomplish if broken up into 10 or 15 minute segments built into one's daily routine. Most adults spend half their waking hours at

work so workplace wellness is becoming more of a focus for organizations as they look for ways to integrate active living at work. However, the Canadian Fitness and Lifestyle Research Institute (CFLRI)'s 2001 physical activity monitor reports that only 25% of Northwest Territories residents say their employer is very or extremely supportive, with most reporting that their employer provides little or no encouragement (58%). Of those reporting no support, 62% believe that employer encouragement would help them to be active. Of those having some support, 69% think that such support actually helps them to be active.¹

The Alberta Centre for Active Living recently completed a scan of workplace wellness plans, that included physical activity offered by employers in that province. The team contacted 70 organizations to request their participation. Of these, 49 agreed to participate and ultimately 30 employers including corporations, government and educational institutions and service agencies returned the survey and consent form. The organizations differed in size and employee population but clearly demonstrated the important role of the workplace in encouraging physical activity at work. The overall organizational goals were to promote health and wellness and encourage a more balanced lifestyle and to provide a positive and safe work environment. This comprehensive review examined the types of wellness programs and initiatives, participation levels, program responsibility, communication strategies and a variety of other aspects of workplace wellness programs. For more information, visit the website at www.centre4activeliving.ca.

Smoking is also a factor impacting health status and is particularly relevant to the NWT. The smoking rate in the NWT is almost twice as high as in the rest of Canada, 42% in the NWT compared to 25% in the rest of the country.²

Recent changes to the regulations that eliminate and control second-hand smoke in the workplace and prohibit tobacco smoke in all enclosed worksites is also an employee health and wellness initiative.

The 2002 NWT School Tobacco Survey reported that 26% of NWT youth between 10 -17 years old smoked whereas the national rate was 19%. It also found that in many cases smoking is a learned behavior within the family and the odds of being a smoker are 2.83 times higher for youth where at least one parent smokes, as opposed to where neither do.

The *Don't Be a Butthead* anti-smoking campaign challenging kids to become smoke free has been active throughout the territory since its launch in May 2004. The website, www.dontbeabutthead.ca is a colorful, graphic and interactive site with information for kids, parents and teachers. The site has pictures, facts, quizzes, testimonials, giveaways and prizes. It also has links to many other sites that provide information on smoking and quitting and talking to kids about smoking: www.hlthss.gov.nt.ca, www.hc-sc.gc.ca/hecs-sesc/tobacco/quitting, www.lung.ca, www.lung/children.ca and www.smokingsucks.nfld.net. These links are geared to teens but also have a wealth of information on tobacco and the industry in general.

The aforementioned school survey, also noted that 68% of students are taught the health risks and dangers of smoking in school. The Don't Be a Butthead site also has a link to a teacher's resource kit, which can also be requested by calling the toll free number 1-866-353-0338.

The online version provides an outline of the campaign and smoke-free challenge, an overview of materials in the kit and other available resources to implement the challenge in school.

The Health Canada site, www.hc-sc.gc.ca/hecs-sesc/tobacco/youth/quit/, is directed at youth and the issues they face when trying to quit smoking. This interactive site includes a four-step plan to quitting – getting motivated to quit; getting informed and learning what to expect; creating a positive and supportive environment; and knowing what to do after quitting. A special feature of this site is its practical application to real life: determining values and goals; calculating the cost of smoking; facing the roadblocks and how to respond to them; removing smoking triggers; how to get back on track if one slips; identifying and coping with withdrawal symptoms; the stress that may accompany quitting; along with many other topics.

Nutrition and alcohol consumption are also important aspects of health status and should not be ignored.

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Mass Meningococcal Campaign in the NWT

Continued from page 15

an organized fashion around activities such as sporting or cultural events.

- Make greater use of the NWT Tele-Care service to deal with phone calls from the public.
- Provide HSS Authorities and frontline staff with more explicit written details of the campaign, expectations, and financial and human resource planning.

Conclusion

With seventy five percent (75%) coverage for the designated thirteen thousand one hundred and sixty eight (13,168) population over a four month period, the mass Meningococcal Vaccine Program was a resounding success. This success was achieved mainly from the hard work and dedication of the NWT's community and public health nurses.

NOTIFIABLE diseases

for the Northwest Territories (NWT) January - December 2004^a

		January - December 2003	January - December 2004
		NWT	NWT
<i>Vaccine Preventable Diseases</i>	Hepatitis B	0	0
	Haemophilus Influenzae	0	0
	Influenzae A	77	0
	Influenzae B	5	0
	Pertussis	0	0
	Chicken Pox	130	41
<i>Sexually Transmitted/ Bloodborne Diseases</i>	Chlamydia	568	649
	Gonorrhea	209	181
	Hepatitis C	23	34
	Hepatitis, Other	0	0
	Syphilis	0	0
<i>Diseases by Direct Contact/ Respiratory Route</i>	Invasive Group A Strep	5	3
	Invasive Group B Strep in neonates	0	0
	Invasive Group B Streptococcus	0	1
	Invasive Pneumococcal Disease	12	15
	Legionellosis	0	0
	Listeriosis	0	0
	Meningitis, Other Bacterial	0	0
	Meningitis, Unspecified	0	0
	Meningitis, Viral	0	1
	Meningococcal Infections	1	1
	Respiratory Syncytial Virus	35	41
Tuberculosis	12	10	
<i>Enteric, Food and Waterborne Diseases</i>	Botulism	0	0
	Campylobacteriosis	7	5
	Cryptosporidiosis	0	0
	E.Coli O157:H7	1	3
	Giardiasis	5	12
	Hepatitis A	0	0
	Salmonellosis	6	3
	Shigellosis	1	0
	Tapeworm Infestation	0	0
	Trichinosis	0	0
Yersinia	0	0	
<i>Vectorborne/Other Zoonotic Diseases</i>	Brucellosis	0	0
	Malaria	0	2
	Rabies Exposure	2	10
<i>Antibiotic Resistant Microorganisms</i>	Methicillin-resistant Staph.Aureus	4	10
	Vancomycin-resistant Enterococci	2	0

NWT HIV Infections Reported from 1987 to 2004

Total	<i>Age Group at Diagnosis</i>								<i>Gender</i>		<i>Risk Category</i>					
	0-9	10-14	15-19	20-29	30-39	40-49	50-59	60+	Female	Male	MSM ^b	MSM/ IDU ^c	IDU	Hetero- sexual	Perinatal	Blood Products
26	1	0	0	4	15	5	0	1	4	22	11	1	6	6	1	1

a Statistics are based on currently available data and previous data may be subject to change

b Men who have sex with men

c Injection Drug User