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EPI NORTH
The Northwest Territories Epidemiology Newsletter

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Investigation of Fort Liard Rash Outbreak

Dr. Kami Kandola, *Medical Health Officer, Stanton Territorial Health Authority*

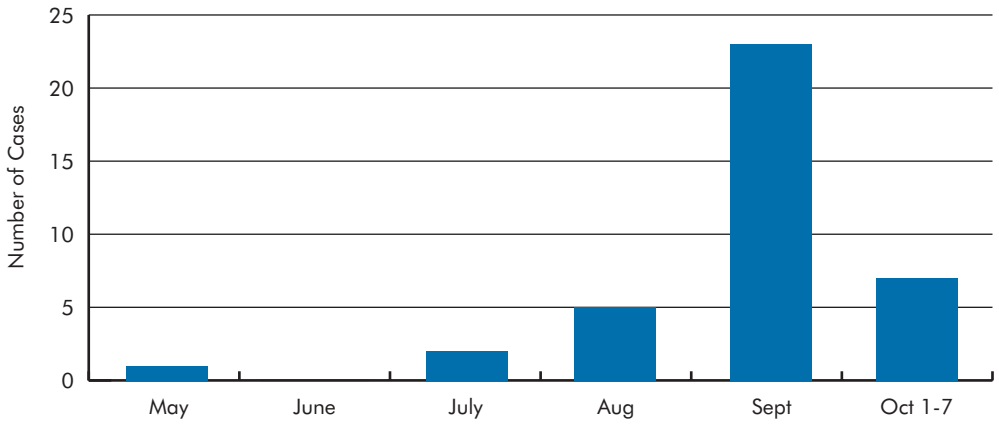
The Department of Health and Social Services was contacted in early September 2003 regarding a cluster of skin rashes in children from Fort Liard. The rash could be described as being generalized, itchy, red and oozing discharge. Given the common exposure of bathing in the river, it was assumed that this was swimmer's itch with secondary infection in several cases. A swab of one of these super-infected lesions grew skin bacteria. These cases were thus treated for impetigo. In late September, the rash had not yet resolved and spread to others. The infectious person-to-person spread ruled against swimmer's itch. Nonetheless, the community raised concerns over the "poor" quality of the water as the cause. The regional Medical Health Officer accompanied by the Senior Environmental Health Officer visited Fort Liard to investigate the situation on October 7 and 8, 2003.

Charts were pulled on all patients who presented to the nursing station with a rash in the previous two months, defined as red and itchy skin lesions. Patients with active lesions were brought to the health centre to be examined by the medical health officer. Meanwhile, the Senior Environmental Health Officer tested the water quality, which met acceptable standards.

Data Findings

At the time of the visit, there were 39 documented patients who presented with itchy, red, and raised lesions. Onset of rash was documented as early as May, with new lesions appearing until the time of the outbreak investigation (see Table 1). There was similar female and male distribution: 19 female and 20 male cases. Seven households accounted for 24 of the cases. Age range was three months to 68 years.

Table 1: Rash Outbreak in Fort Liard in 2003



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Northwest Territories Health and Social Services

HOW TO REACH
EPINORTH

Letters to the editor and articles are welcome but may be edited for space, style and clarity. Please contact the Managing Editor for article guidelines. All submissions must be sent electronically.

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Editor's Notes

Jennifer Carey, Managing Editor, *EpiNorth, Department of Health and Social Services*

When I was searching an online thesaurus for related synonyms for prevention (the theme of this issue), I stumbled across the following quote,

> *The greater the distance, the greater the prevention.* – Francis Bacon[1]

Reading this, and further digesting what it meant, made me think about the distances we go daily, undertaking preventative measures to ensure our lives remain healthy and happy. From the time we brush our teeth in the morning, to the seatbelts and bike helmets we wear while going to work, to the balanced diets we eat, every day we are going the distance to prevent things like tooth decay, accidents and injuries, and other health-related difficulties. For this issue, the contributors provide us with some of the various measures in which the NWT is going the distance to prevent such things as rash outbreaks, diabetes, cancer, and tuberculosis.

Dr. Kami Kandola first provides us with a summary of the Fort Liard rash outbreak investigation that took place October 7 and 8, 2003. Through this summary, Kami highlights the data findings, interpretation, and recommendations of that investigation. Kami also highlights the follow-up that has occurred since the investigation and speaks to how scabies has remained a problem in Fort Liard.

Diabetes Surveillance Officer, Joyce Bourne submitted a brief overview of the incidence and prevalence of diabetes in the NWT. With tables that focus on age group and gender, Joyce is able to provide an expert overview of what our territorial statistics are, and also points out the unique opportunities the Northwest Territories has in being able to prevent the onset of diabetes in the future.

Missing only one issue since I have taken on the responsibility of Managing Editor of *EpiNorth*, Maria Santos, Territorial Epidemiologist provides us with a second summary of the NWT cancer report, *Cancer in the Northwest Territories (1999-2000)*. In this second summary, Maria focuses on cancer incidence and mortality rates for both ethnic groups and community types, and concludes with a discussion about the development of a NWT Action Plan for cancer control.

Communicable Disease Specialist, Cheryl Case provides us with her expertise regarding the NWT Tuberculosis Control program. In her submission, Cheryl not only provides us with a description of how Directly Observed Therapy has been a success in the NWT, but she also provides a snapshot of the statistics from 2002 and 2003. In her conclusion, Cheryl discusses preventative measures that need to be taken in order for the annual rate of TB in the NWT to substantially decrease.

I remain as the contributor to the Health.online section of *EpiNorth*. This issue, I present an overview and review of the website, *Canada's Role in Fighting TB*. Continuing with the theme of prevention, I focus on the extent to which this website is able to provide you the information, tools, and resources necessary to prevent TB. Further, I present NWT-related information regarding the TB information and Action Plan status report that you are able to access through the Department's website.

I still encourage each of you to write about your various experiences and/or insights regarding specific issues that arise out of *EpiNorth*, or about healthcare in general. Doing so would not only shine some light on the issue on a territorial scale, but it would also allow for formal publication of your views.

Helping keep you informed to live healthy and happy lives!

REFERENCE

1 Dictionary.com. *Prevention*. 2004. Online: http://dictionary.reference.com/search?q=prevention. (Accessed June 11, 2005)

The Prevalence of Diabetes in the NWT

Joyce Bourne, *Diabetes Surveillance Officer, Department of Health and Social Services*

Diabetes[a] is a chronic disease that is on the rise throughout Canada. Through the National Diabetes Surveillance System, all provinces and territories in Canada are now participating in diabetes data collection and analysis. Preliminary baseline data is now being established and will be used to track future trends for diabetes incidence, prevalence, its complications, and costs. These in turn will enable the development of policies relating to diabetes care and management; programs and projects to prevent and manage diabetes; and the projection of costs for health services and facilities in the future.

National Diabetes Surveillance System

The National Diabetes Surveillance System (NDSS) is a response by a multi-sectoral body of stakeholders to the lack of information around diabetes in Canada. It is part of the Canadian Diabetes Strategy, a six-year initiative implemented in 1999. The Canadian Diabetes Strategy has four main areas: the Aboriginal Diabetes Initiative; Prevention and Promotion; National Coordination; and the National Diabetes Surveillance System (NDSS).

The main goal of the NDSS is to develop, facilitate, and coordinate national, provincial, territorial, and Aboriginal diabetes surveillance. This surveillance system involves the production of nationally comparative data on diabetes prevalence and incidence, as well as comparisons of mortality, diabetes-associated diseases, and health care utilization rates in the population with diabetes compared to the population without diabetes.

NDSS looks at diabetes and its complications in an entirely new way. It brings together information from records of physician visits, hospital admissions and health insurance. For the first time, the progression of cases of diabetes as well as their complications can be tracked.

In the NWT, three databases have been set up for the NDSS in accordance with national standards. These include: a) Territorial Registry of Insured Persons; b) Physician Claims; and c) Hospital Discharge Data. The data is extracted from the following different sources in the administrative databases:

- **Territorial Registry of Insured Persons** - Health Insurance Registry;
- **Physician Claims** - Medicare, Territorial Hospital Information System (THIS); and
- **Hospital Discharge Data** -Territorial Hospital Information System and the Canadian Institute for Health Information.

Diabetes Prevalence[b]

Responding to the Challenge of Diabetes in Canada is the first report of the NDSS released by Health

a For further information on the different types of diabetes, please refer to Box 1 found at the end of the article.

b Caveats

- *Year*: Data starts in the 1995/1996 fiscal year
- *Age*: Data is available for persons 20 years and older by age group and gender.
- *Limitations*: Data does not differentiate between type 1, type 2 and gestational diabetes. [Although gestational diabetes has its own ICD-9 code (648.0)], it is often miscoded as type1/type2 and therefore some cases of gestational diabetes are included in these tabulations.
- *Case Definition*: The rule examines the hospital and medical data for diabetes diagnosis (e.g. ICD-9 250). A person is defined in the NDSS as having diabetes if there is a single hospitalization (case date is the discharge date) or there were two physician's visits within a two-year (730 day) period (case date is the earliest of the two). In addition, if there is a physician visit within the 730 days prior to the hospitalization, it is the date of the physician visit that is used as the case date. The rule has not been validated for persons younger than 20 years of age.
- *Standardization*: In order to facilitate the comparison across provinces, the provincial / territorial data are standardized by specific age group to the 1991 population.

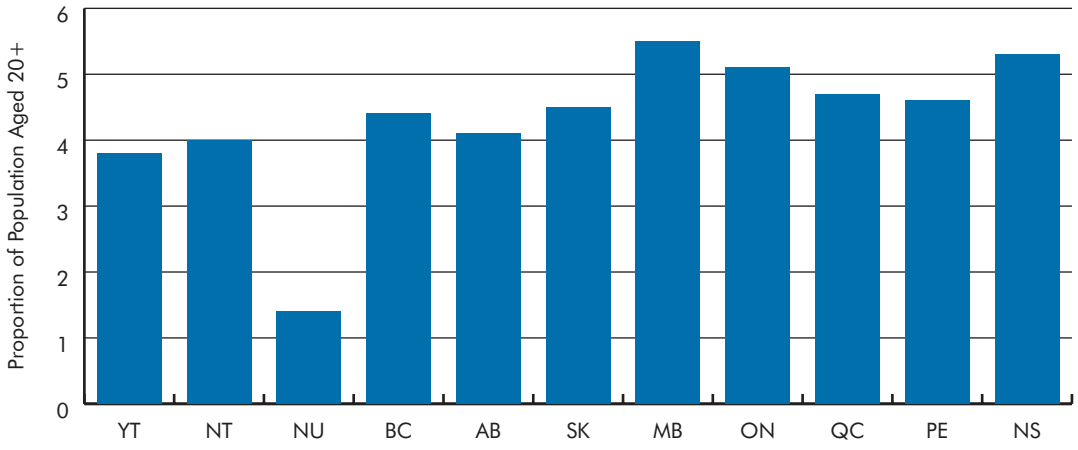
Canada. This report includes five years of data up to March 2000 on the national prevalence rates for diabetes as well as prevalence rates for most provinces and territories. Data from New Brunswick and Newfoundland and Labrador are not included in this report. In 1999/2000, 5.1%[c] of Canadian adults were living with diagnosed diabetes.[d]

Table 1 compares the prevalence rates (age-sex standardized) of most provinces and territories. As the table illustrates, the prevalence rate in the Northwest Territories (4%) is lower than the 10 provinces in Canada but slightly higher than the Yukon and much higher than Nunavut. Also the three territories have the highest proportion of Aboriginal peoples (22% in the Yukon, 46% in the Northwest Territories and 81% in Nunavut) but the lowest prevalence rates. This may be due to the inability of some administrative data to capture diabetes diagnosis outside the fee-for-service payment system. In northern jurisdictions, a higher proportion of physicians are salaried and therefore they are not always required to submit medical claims. In the NWT, these salaried physicians are supposed to 'shadow bill' which means they document each patient visit [diagnosis and procedure(s)] in order to capture this data for the administrative databases. Since there is less incentive to 'shadow bill', the data may have a higher probability of not being recorded in comparison to the fee-for-service system. Another reason for lower prevalence rates appears to be a north-south gradient among First Nations populations with people in the south having higher diabetes rates than those in isolated northern communities.[1]

NWT Prevalence by Age Group and Gender

Table 2 illustrates the crude prevalence rates for three years by age group and gender in the Northwest Territories. In 1999/2000, the prevalence rate for men is higher than women until the 70-80+ age groups. The exception to this is the 30-39 age group where men and women are almost the same and the 50-54 age group where women are slightly higher than men by 0.5%. In age groups over 70, women

Table 1: Prevalence* of Diabetes in Canada by Province/Territory, 1999/2000



* age-sex standardized to 1991 Canada population

c Crude rate per 100 persons aged 20+

d NDSS prevalence estimates represent diagnosed diabetes among health services users. Prevalence may be underestimated by 30% as a result of subclinical, undiagnosed diabetes.

Table 2: Age-specific Prevalence of Diabetes by Fiscal Year and Sex[e]

Northwest Territories

Age Group	1997/1998		1998/1999		1999/2000	
	Female	Male	Female	Male	Female	Male
20-29 Prevalence (%)	0.3	0.3	0.2	0.4	0.3	0.4
• People with diabetes	12	11	9	14	10	14
• Annual population count	3,843	3,764	3,659	3,639	3,525	3,460
30-39 Prevalence (%)	1.0	0.8	1.1	0.9	1.0	0.9
• People with diabetes	42	38	46	39	42	38
• Annual population count	4,384	4,524	4,263	4,339	4,107	4,149
40-49 Prevalence (%)	2.4	2.3	2.5	2.8	2.4	3.0
• People with diabetes	75	80	80	104	77	108
• Annual population count	3,175	3,550	3,251	3,664	3,236	3,644
50-54 Prevalence (%)	4.1	5.3	5.5	5.3	6.1	5.6
• People with diabetes	39	68	55	70	66	78
• Annual population count	961	1,272	1,002	1,320	1,074	1,381
55-59 Prevalence (%)	6.2	6.9	6.5	8.6	7.0	9.2
• People with diabetes	40	54	43	71	46	76
• Annual population count	646	786	658	822	660	829
60-64 Prevalence (%)	6.2	9.1	7.5	8.9	7.9	11.1
• People with diabetes	40	54	43	71	34	57
• Annual population count	405	515	424	526	432	512
65-69 Prevalence (%)	9.2	7.3	8.0	10.2	8.7	13.7
• People with diabetes	27	28	25	39	28	54
• Annual population count	292	382	311	384	321	395
70-74 Prevalence (%)	12.0	9.7	14.6	9.3	13.6	8.8
• People with diabetes	26	23	31	24	29	23
• Annual population count	216	237	212	257	214	261
75-79 Prevalence (%)	9.6	4.1	9.2	6.5	12.6	8.0
• People with diabetes	13	6	14	9	20	11
• Annual population count	136	147	153	139	159	137
80+ Prevalence (%)	11.7	4.3	11.4	4.8	11.7	6.2
• People with diabetes	23	7	22	8	21	10
• Annual population count	197	161	193	165	179	162
Total Prevalence (%)	2.3	2.4	2.5	2.8	2.7	3.1
• People with diabetes	322	362	357	425	373	469
• Annual population count	14,255	15,338	14,126	15,255	13,907	14,930

e Crude Prevalence Rates

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Cancer in the Northwest Territories (1990-2000):
A Focus on Ethnic Groups and Community Types

Maria Santos, *Territorial Epidemiologist, Department of Health and Social Services*

Cancer in the Northwest Territories (1990-2000) is a comprehensive descriptive profile of cancer in the Northwest Territories (NWT).[a] Its first objective is to examine data on cancer incidence and mortality within the NWT population and to compare the rates to Canada. The full report also describes various approaches for controlling cancer in the NWT.

As part of health planning, it is important to know whether certain ethnic groups are at higher risk for particular cancers due to hereditary or lifestyle factors, thus allowing for targeted health promotion and screening efforts. It is also important to look at community types to see whether differences in community health outcomes are associated with distance access to certain health services. Differences in health outcomes are not only affected by access to health services but characteristics such as the type of cancer, age at diagnosis, gender, disease stage and progression, site of disease, existence of other illnesses, socio-economic status, differences in diagnostic techniques, and health status prior to disease.

For *Cancer in the Northwest Territories (1990-2000)*, analyses were performed using data from the NWT Cancer Registry, the NWT Vital Statistics Registry, and from Health Canada's Cancer Bureau. Whereas the *EpiNorth* Summer 2003 issue primarily focussed on cancer trends and gender differences in the NWT, this article will provide an overview of cancers experienced by ethnic groups (Dene, Inuit and Non-Aboriginal/Métis) and within particular community types (Yellowknife, Regional Centres and Smaller Communities). The rates represent an average annual rate for cancer incidence (1992-2000) and cancer mortality (1990-1999) whereas the Canadian rate corresponds to 1996 values. The average helps to control the wide variation in rates associated with analyzing data from small populations. The periods of analysis for examining incidence and mortality were selected based on the availability of the most accurate and reliable data.

Ethnic Groups

Although there are slight variations in rank and distribution, it was noted that the top three cancer diagnoses in the three ethnic groups were similar to the NWT as a whole. In the NWT, the top three cancer diagnoses in males were: colorectal (22%), lung (19%), and prostate (11%). Among the Dene and Inuit male, stomach cancer was another common cancer. Similarly the top three female cancers for each of the ethnic groups were similar to NWT females as a whole breast (28%), colorectal (15%), and lung (14%).

The top three cancer deaths among males and females in the various ethnic groups were also similar by type to the top three cancer diagnoses. However lung cancer, which has the poorest survival, was consistently the most frequent cancer death for all ethnic groups.

When the age-adjusted cancer incidence and mortality rates of the three ethnic groups in the NWT were compared to the gender-specific national rates, the findings below were noted.[b]

a The full report is available in the Publications link on the Department website at www.hlthss.gov.nt.ca.

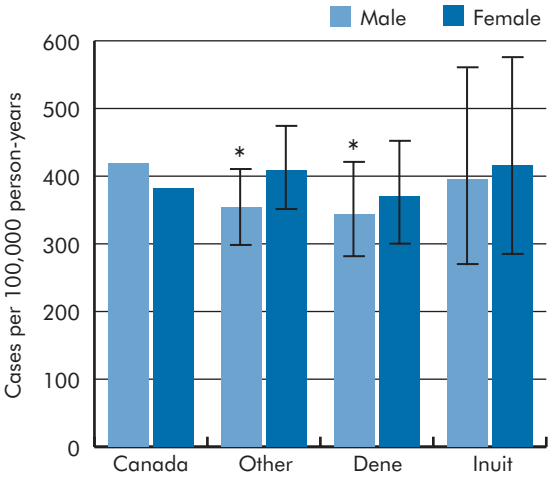
b To account for the age differences between two populations, rates are often age-adjusted. Although age-adjusted rates are not "real" (i.e. they do not represent the actual burden of cancer in the population), they provide insight into the relative risk of developing cancer between the NWT sub-population and Canada.

Incidence

- Males from the Non-Aboriginal/Métis and the Dene ethnic groups are respectively 15% and almost 20% less likely to have cancer than males in Canada. Meanwhile, Inuit males have diagnosis rates similar to Canadian males. (Figure 1)
- The risk for prostate cancer among the Non-aboriginal/Métis men is 35% lower than Canadians. For Dene males, the rate is more than 70% lower.

  On the other hand, the risk for colorectal cancer among Dene males is 2.2 times greater than the national rate. The risk factors associated with colorectal cancer are a diet high in saturated/ hydrogenated fats and low in vegetables, fruits and fibre, obesity, physical inactivity, heavy alcohol consumption, and smoking.[1]
- The female age-adjusted cancer incidence rates for each of the ethnic groups were similar to the female Canadian rate. (Figure 1)
- Colorectal cancer in Dene females is almost 1.9 times greater than the female national rate and 2.5 times greater among Inuit females.
- Pancreatic and oral cancer in Non-Aboriginal/Métis females were more than three times higher than the national rate.[c] The risk factors for pancreatic cancer are smoking; a diet low in vegetables, fruit and fibre; obesity; and workplace exposure to gasoline manufacturing processes.[2] Oral cancer is often associated with smoking or chewing tobacco, heavy alcohol consumption, and excessive sun exposure to the lips.[3]
- Liver/gallbladder cancer was 4.7 times higher in the Dene female population.[d] Liver cancer is often associated with chronic hepatitis B and C infection, tobacco use and heavy alcohol consumption.[4] Gallbladder cancer is linked to gallstones and gallbladder inflammation, cigarette smoke, obesity, and a diet high in carbohydrates and low in fibre.[5]

Figure1: Age-Standardized Cancer Incidence Rates by Ethnic Group (1992-2000)



Age-standardized incidence rate is significantly lower* or higher** (p value<0.05) than Canada's sex-specific rate

'Other' includes Non Aboriginal and Métis

Sources: NWT Registry (1992-2000) and Health Canada - Cancer Bureau (1996)

Mortality

- The age-adjusted cancer mortality rate in Non-Aboriginal/Métis males is 20% lower than the male Canadian rate, whereas the male Inuit have cancer mortality rates that are 50% higher. Dene males have rates similar to Canadian males. (Figure 2)
- The cancer mortality rate among female Inuit is almost 70% higher than rates in Canadian females. The rates for Dene and for Non-Aboriginal/Métis females are similar to Canadian females. (Figure 2) The higher cancer mortality rates among the Inuit may suggest late diagnoses and treatment and thus

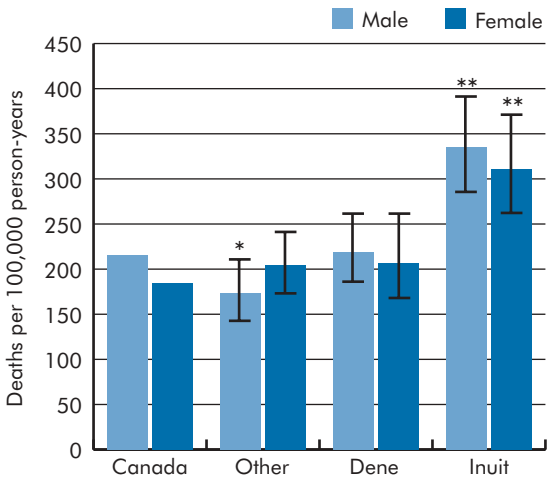
c Interpret with caution. The incidence rates for these cancers are unstable due to small numbers.

d Interpret with caution. The incidence rates for these cancers are unstable due to small numbers.

poor cancer survival in the population. In order to test this hypothesis, data such as stage of diagnosis must be collected and analyzed. The NWT Cancer Registry currently does not collect this information; however it is anticipated that this data collection will occur in the near future to address such questions.

- Lung cancer deaths among Inuit females are 2.8 times higher than the rate among Canadian females.[e]
- Pancreatic cancer among the Non-aboriginal/ Métis females is 3.1 times higher than the rate in Canadian females.[6]

Figure 2: Age-Standardized Cancer Mortality Rates by Ethnic Group (1990-1999)



Age-standardized mortality rate is significantly lower* or higher** (p value<0.05) than Canada's sex-specific rate

'Other' includes Non Aboriginal and Metis

Sources: NWT Vital Statistics (1990-1999) and Health Canada - Cancer Bureau (1996)

Community Types

Communities were aggregated according to three distinct community types based on similar socio-demographic factors: Yellowknife, regional centres (Hay River, Fort Smith, and Inuvik), and smaller communities (the remaining communities in the NWT). Analyses similar to those presented in the previous section on ethnicity were conducted to compare the age-adjusted rates to Canadian gender-specific values.

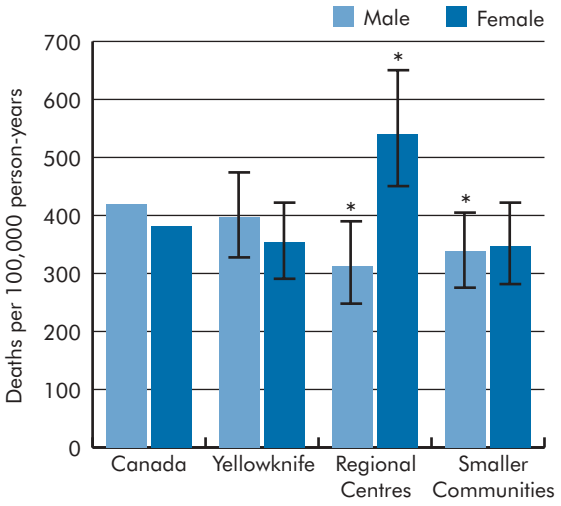
Incidence

- Once again, the top three cancer diagnoses and deaths in each of the community types were similar to the NWT as a whole even though the ranking and distribution varied slightly. In the NWT, the top three cancer diagnoses in males were colorectal, lung and prostate. As for females, the top three cancers in the NWT were breast, colorectal and lung.
- Age-adjusted cancer incidence rates among NWT males living in smaller communities and regional centres are almost 20% and 25% lower than the male rate in Canada. Males living in Yellowknife have rates similar to Canadian males. (Figure 3)
- Looking at individual cancer types, the rate for stomach cancer in regional centres and for colorectal cancer in smaller communities was almost 2.9 and 1.8 times the male Canadian rate.
- The rate for prostate cancers remains more than 50% less than the Canadian value, especially within regional centres and smaller communities.
- Women living in regional centres have a cancer incidence that is more than 40% higher than Canadian females. Females living in Yellowknife and smaller communities have rates similar to their Canadian counterparts. (Figure 3)
- In comparison to Canadian females, the rate for colorectal cancer is almost 1.7 times higher among females in smaller communities, and 2.2 times greater in regional centres.
- In Yellowknife, the rate for pancreatic cancer is 4.2 times higher than Canadian females.[7]
- In regional centers, the rate of oral cancer is almost seven times the Canadian value.[8]

e Interpret with caution. The incidence rates for these cancers are unstable due to small numbers.

- The rate for lung and kidney cancer among females in smaller communities is 1.8 and 2.7 times the female rate in Canada.[14]

Figure 3: Age Standardized Cancer Incidence Rates by Community Type (1992-2000)



Age-standardized incidence rate is significantly lower* or higher** (p value<0.05) than the gender-specific rate in Canada.

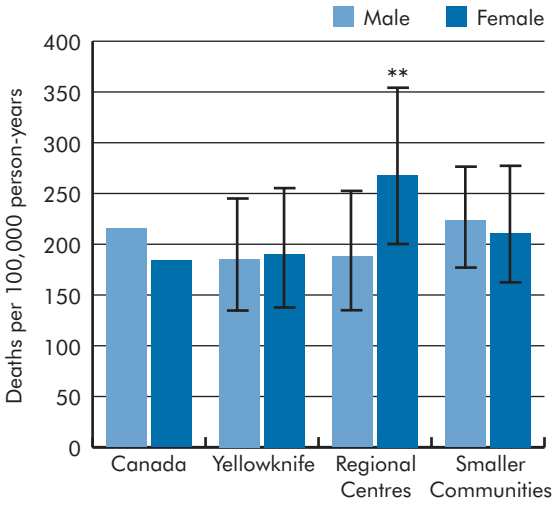
Regional Centres include Fort Smith, Hay River, and Inuvik. Smaller communities include all other communities in the NWT.

Sources: NWT Cancer Registry (1992-2000) and Health Canada - Cancer Bureau (1996)

Mortality

- The top three cancer deaths among males and females in the various community types were almost similar to the top three cancer diagnoses. However additional cancer deaths were noted. Stomach cancer among males in regional centres was the third most frequent cancer death whereas pancreas and liver/gallbladder cancers were the third most common cancer death along with prostate cancer in the smaller communities. As for females, pancreatic cancer tied with breast cancer as the third most frequent cancer death in Yellowknife. Again lung cancer was the most frequent cancer death for all community types.
- Males within all three community types have cancer mortality rates similar to Canadian males. (Figure 4)
- The male mortality rate for liver/gallbladder cancer in smaller communities is almost 3.3 times greater than the national male rate.[10]
- Similar to incidence rates, females living in regional centres have a cancer mortality rate more than 45% higher than the rate in female Canadians. (Figure 4)
- The female mortality rates for colorectal cancer in regional centres and for pancreatic cancer in Yellowknife are more than 2.6 and 4.1 times greater than the rate for Canadian females.[11]

Figure 4: Age Standardized Cancer Mortality Rates by Community Type (1990-1999)



Age-standardized incidence rate is significantly lower* or higher** (p value<0.05) than the gender-specific rate in Canada.

Regional Centres include Fort Smith, Hay River, and Inuvik. Smaller communities include all other communities in the NWT.

Sources: NWT Vital Statistics (1992-2000) and Health Canada - Cancer Bureau (1996)

Developing an NWT Action Plan for Cancer Control

Cancer in the Northwest Territories (1990-2000) is an information resource for individuals interested in understanding cancer in the North. While written mostly for healthcare providers and program planners, it will also inform policy makers, community leaders and interested

continued on page 16

Directly Observed Therapy: A Success in the NWT

Cheryl Case, *Communicable Disease Specialist, Department of Health and Social Services*

Since the World Health Organization declared tuberculosis (TB) a worldwide epidemic in 1993 Directly Observed Therapy (DOT) has become an internationally recommended pillar of a successful TB control strategy. Essential components of a DOT program are political commitment, ready access to appropriate laboratory services, publicly-funded drug therapy, ongoing active surveillance, and ensuring complete and effective treatment for TB.

The NWT TB program complies with all of these recommendations and in 1995 was one of the first jurisdictions in Canada to standardize the use of DOT for treatment of all active cases of tuberculosis and of Directly Observed Prophylaxis (DOP) for treatment of Latent TB infection (LTBI). The NWT program continues to make early case finding a priority to stop the spread of TB and ensure that all cases complete treatment with DOT.

Directly Observed Therapy (DOT)

Since 1995, DOT has resulted in many successes such as the achievement of 100% cure rates for active cases, 0% of relapse (disease reoccurring post treatment), and 0% TB drug resistance.

Although the treatment is standardized, each client presents with unique needs and challenges. DOT and DOP include logistical challenges for the field staff such as clients who have difficulties traveling to the health centre or public health unit, the need to provide young children a nutritious treat to make the medicine more palpable, or dealing with others who find the treatment disruptive and inconvenient. Therefore, the success of DOT has to be attributed to the hard work by the staff at the community health centers and public health units.

Healthcare providers have overcome some of the challenges of DOT by:

- driving long distances to visit a client to observe them taking TB medication;
- offering encouragement and supportive services to clients to address issues of alcohol abuse;
- taking the time to read a favourite story to a child;
- building flexibility into the program to adapt to their client's changing needs such as going out on the land – a solution may be to train a lay person (a family member or travel companion) to do DOT; and
- dealing with an angry TB client – since TB is still a stigmatized disease, often counseling is necessary to build community and patient acceptance.

Successful compliance of DOT for the required six to nine months often depends on the rapport established between the client and health care provider at the beginning of treatment. This rapport often allows the health provider to address the individual's emotional, social and medical needs to ensure the client's requirements are met by nurses, physicians, community health representatives, social workers, TB assistants, and family. Early planning and ensuring sufficient staff are available to meet the needs of the client can often set the stage for the completion of treatment.

TB Snapshot for 2002 and 2003

In 2003, 12 new cases of tuberculosis were reported to the Office of the Chief Medical Health Officer:

- two cases were extra pulmonary, two were primary TB in children and eight were pulmonary TB (all 40 years and older);
- of the eight pulmonary TB cases, two were highly infectious smear positive cases;
- all 12 cases were in people of Aboriginal ethnicity; and
- age break down of the 12 cases as follows:
  - 0-9 years: 2
  - 10-19 years: 2
  - 20-39 years: 0
  - 40-59 years: 3
  - 60 years and over: 5

Figure 1 demonstrates declining TB rates in the past 10 years. A five-year running average is a better representation to demonstrate more consistent rates for our low case numbers and population. Some of this success can be attributed to DOT, but other contributors are early case finding, contact tracing, surveillance, and TB awareness.

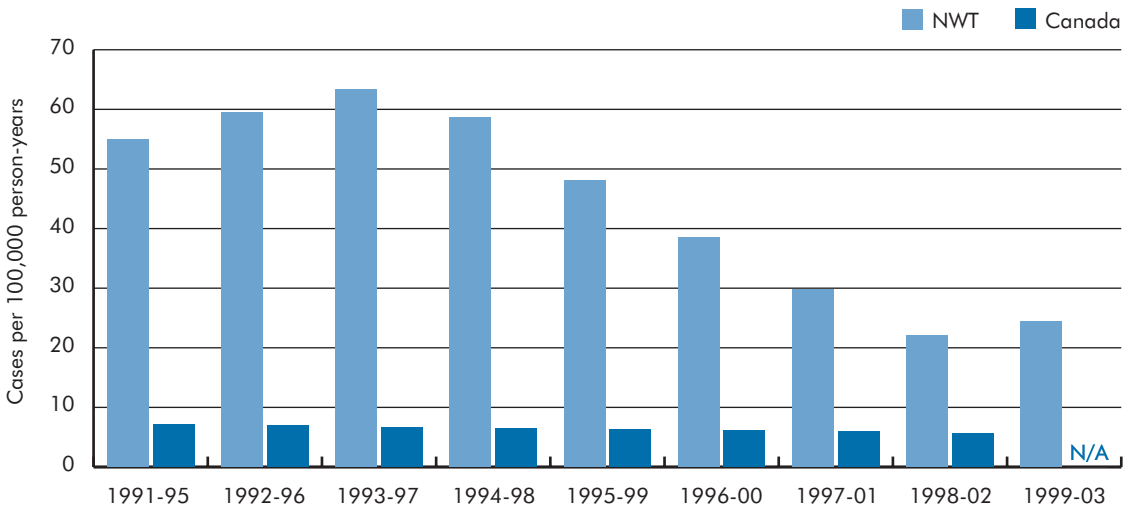
Treatment and Contact Tracing for the Year 2002:

There were 4 cases of TB reported in 2002 as outlined in the following:

- three cases were pulmonary TB with one of these cases being an advanced highly infectious smear positive, diagnosed at a later phase of the disease. Contact tracing was done on all three pulmonary cases reported;
- the remaining two were a lower level of infectivity, detected at an early phase of the disease; and
- the 4th case was extra pulmonary (spinal TB), thus not considered infectious.

All four cases successfully completed DOT.

Figure 1: Tuberculosis Rates, All Ages 1991-95 to 1999-03



Rates are based on a five-year running average, population estimates, and are subject to future revisions.

N/A = not available

Sources: NWT Department of Health and Social Services, Health Canada, NWT Bureau of Statistics and Statistics Canada

continued on page 17

Continued from page 1

Average age was 13.2 years with 31 patients younger than 18 years of age. Fourteen were less than 5 years of age. None of the cases had constitutional symptoms such as fever and malaise or upper respiratory tract manifestations prior to the onset of rash.

Characteristics of rash:

- generalized
- preference for the webbed spaces of the fingers and toes
- pustular with blood-tinged discharge
- itching was worse at night
- threadlike curves or burrows were common
- lesions were noted on palms and soles in infants.

Interpretation

Although skin scrapings were taken from two sites and viewed under microscopy, it failed to reveal ectoparasites (see Figure 1) or eggs. No potassium hydroxide was available which can be used to detect hyphae to rule out fungal causes.

Nonetheless, a clinical diagnosis of scabies infestation was made, given the history and typical skin manifestations (see Box 1). The territorial consultant dermatologist confirmed this after examining the digital photos. Viral causes were ruled out due to lack of constitutional symptoms. Lesions were not typical of chicken pox and were not painful like herpes simplex. Impetigo was likely due to secondary infection but not a primary cause. Body lice were considered as part of the differential diagnosis but it was an unlikely site for this particular age group. There was minimum scalp involvement. Molluscum contagiosum was ruled out since the lesions were not umbilicated and presentation was atypical. Swimmer's itch was unlikely due to infectious spread from person to person. Lesions did not look eczematous but presented as discrete papules. Finally, some households had already completed treatment with the permethrin 5% lotion used to treat lice or scabies with resolution of symptoms.

Recommendations

The population of Fort Liard is about 540 people, and during this outbreak roughly 7% of the community presented with scabies lesions. Awareness at the community level was raised both verbally and through educational pamphlets. The band chief was also recruited to speak at the band meeting on this issue and had been briefed by the Medical Health Officer during the visit on the likely diagnosis.

It was recommended that the treatment of cases should be as close as possible from the time of diagnosis to prevent re-infestation. Those cases presenting with significant impetigo were also treated with oral antibiotics. In some cases, it was not possible to wait for all the lesions to heal prior to permethrin treatment.

It was recommended that all household members and sexual contacts of cases be treated with permethrin 5% prior to bedtime with removal in the morning[a]. A repeat application within seven days should have been used to eradicate mites from newly hatched eggs.

Nurses were also told to advise the patients of possible persistent itchiness after applications since this is normal, even up to several weeks. Clothes worn on the day of treatment and bedtime clothes worn while on treatment were also to be washed in hot water along with bed sheets. In Fort Liard, water is trucked in on a biweekly basis and is a scarce resource. Efforts were placed on what was feasible within this context.

Follow Up

Treatment of infested cases and their close contacts (both household and sexual) did occur. Although the numbers of scabies visits were dramatically reduced in the following months, this pest was not entirely eradicated from the

a Infants should use 7% precipitated sulfur petrolatum for 3 days instead of permethrin 5%.

Box 1: Scabies (also known as the Seven Year Itch)[2]

This is an itchy and contagious skin condition caused by infestation of mites. The mites attach to the skin from contact with an infested person or with clothes and other personal items. It then burrows into the skin of the new host and lays eggs, which hatch within 3-4 days. Within 30 days, a delayed type IV hypersensitivity reaction occurs which gives rise to an intense itchiness, especially at night. For those with recurrent infestations, symptoms may begin within hours of initial contact. For those who are immunocompromised, elderly or debilitated, extensive widespread crusted lesions can result in the highly contagious *Norwegian scabie*s.

Scabies rash is often found in skin folds/creases, outside joints and webs between fingers and toes. Men may have lesions in their groins and women may have lesions on their nipples/breasts. In infants and young children, the rash is generalized and also involves the palms, soles, face and scalp.

A scabies rash can be recognized by thin serpiginous burrows or raised white lines. Sometimes a mite can be seen at the end of a burrow. These can be identified through the application of a drop of oil to the burrow and scraping gently. The debris should be transferred to a slide and viewed under a microscope at 40X magnification.

Other than burrows, the rash may also present as erythematous papules or scratches. These scratches typically run the risk of superinfection. For this reason it is common for children to present with impetiginous lesions and be sent home on antibiotic therapy. Nonetheless, impetigo is a secondary infection which needs to be treated but will not address the underlying trigger which is the scabies infestation. It is therefore recommended to treat both.

Scabies can affect all humans regardless of race, gender and socio-economic status. Like head lice, it is more of a nuisance than a serious public health threat.

Figure 1: Sarcoptes s

community (See Table 2). Eradication of scabies requires mass treatment of the whole community within a short period of time. Since September 2004, over 174 people have been treated – about one-third of the community. Nonetheless, the following risk factors underlie the difficulty of permanent resolution of this parasitic infestation:[1]

- Crowded houses and schools
- Shared beds and shared clothes
- Younger demographics
- Failure to recognize infestation and seek nursing advice
- Incorrect application of permethrin 5%. Only applies to affected areas
- Close contacts not treated/fail to comply
- Clothes and other personal items not washed
- Restricted access to water predispose to secondary infection.

Some of these issues can be directly addressed to the community through public forums or an educational campaign. With crowded houses and a large mobile pediatric population, no one individual is immune to scabies infestation unless the community as a whole is jointly involved in preventing its spread from one home to another. Community mobilization activities have yet to occur and scabies remains as a persistent problem.

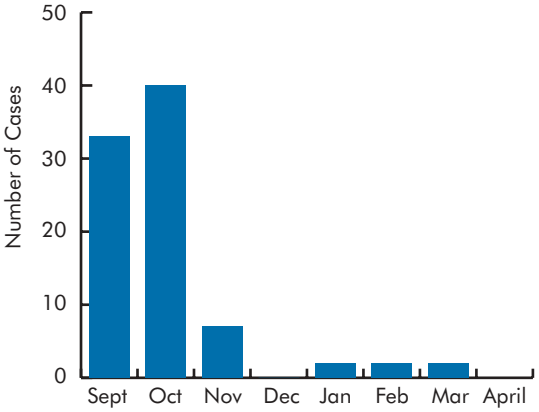
RFERENCES

1 Indian and Inuit Health, Canadian Paediatric Society. Committee, Scabies Management, *Paediatrics & Child Health* 2001; 6(11):775-7

2 Sciammarella J, Scabies, E-medicine www.e-medicine, com/emerg/topics517.html, July 8, 20002

3 www.pherec.org/entguides/ EntGuide8.html

Table 2: Number of Scabies-Related Visits to Fort Liard Nursing Station from September 2003 to late April 2004 (Includes Repeats)



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Box 1: Diabetes Types

Diabetes affects people of all ages. **Type 1 diabetes** is an autoimmune disease, perhaps triggered by a virus or other environmental attack, that causes the destruction of the pancreas which stops the production of insulin altogether.[2] As a result, there is the need for life-sustaining injections of insulin. Type 1 diabetes usually begins during the first two decades of life. It is associated with a high incidence of complications.

Type 2 diabetes, sometimes called adult onset diabetes, can develop in two ways: the pancreas produces insulin but not enough to transform glucose from food into energy and/or the pancreas produces insulin but the body is unable to use it efficiently - a condition called insulin resistance.[3] It occurs most often in obese individuals over the age of 40. Type 2 diabetes may be controlled by weight loss, exercise and medication taken orally. However, for some people, daily insulin injections may be required.

Gestational Diabetes Mellitus (GDM) is a temporary condition that affects 2 to 4 % of pregnant women who have never exhibited any signs of high blood glucose. It usually lasts only for the duration of the pregnancy and rarely persists after the baby is born.[4] The hormonal changes of pregnancy stress the mother's system and, in some cases, the pancreas is unable to produce sufficient insulin. There is a greater incidence among First Nations, African American, Spanish and Asian ethnicities. GDM is a strong risk factor for developing type 2 diabetes later in life.

have a higher diabetes prevalence than men in the NWT. This differs from the overall national Canadian statistics where men have a higher prevalence rate than women in all age groups from 40 years and over. In Table 3, these NWT prevalence rates for age groups and gender are presented for the 1999/2000 year.

Summary

The first output of NDSS data has indicated that as of March 2000, there were 373 females and 469 males diagnosed with diabetes in the NWT, which provides a prevalence rate estimate of 4% (age-sex standardized). Approximately one third of those diagnosed with diabetes were Aboriginal. Table 1 illustrates that this is one of the lower prevalence rates in Canada. With this knowledge there is a unique opportunity in the Northwest Territories to focus on the prevention of diabetes with lifestyle strategies such as healthy eating and active living. As well, continued strengthening and support of the diabetes education programs in the NWT will assist those living with diabetes to better manage the disease in order to avoid complications such as blindness, lower limb amputations, kidney dialysis and cardiovascular disease.

A NWT diabetes strategy is being developed by the Department of Health and Social Services in collaboration with diabetes stakeholders throughout the NWT and in consideration of the national diabetes framework. Similarly, an active living strategy is being developed by the Department of Municipal and Community Affairs. These two strategies will provide important direction and focus in reducing the incidence and morbidity of diabetes and other chronic diseases in the future.

REFERENCES

1 Health Canada: *Responding to the Challenge of Diabetes in Canada. First report of the National Diabetes Surveillance System* (NDSS) 2003

2 Murphy, Lisa. 2002. *Diagnosis: Diabetes*. Canadian Living, November: p67

3 ibid

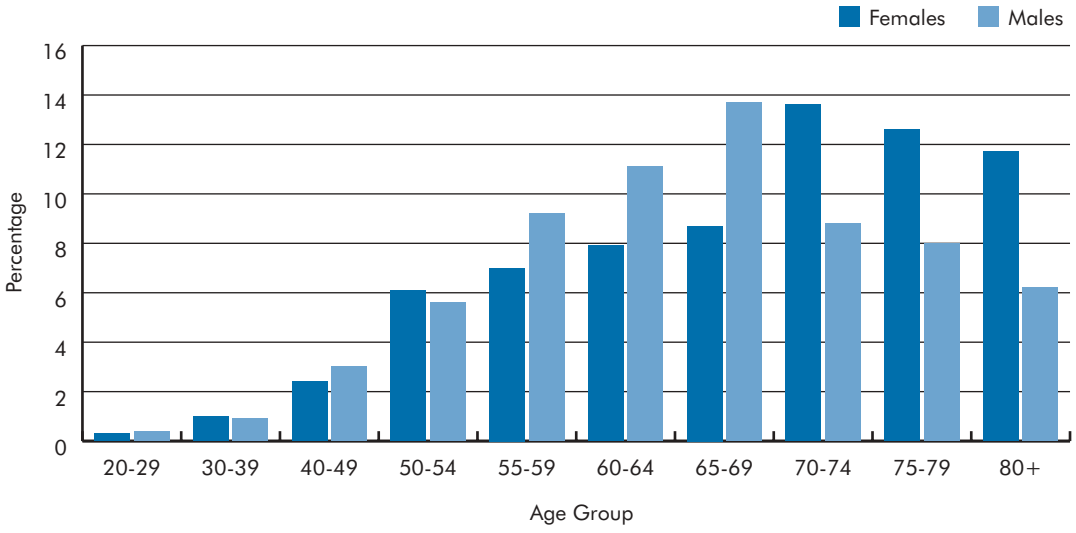
4 DeRoose, Elsie, Wong, Mabel, Deans, Mary. Women's Nutrition Part 3 -Gestational Diabetes Mellitus. *EpiNorth* 13,4 (2001): 10-12.

5 Charles MA, Fontbonne A, Thibult N, et al. Risk factors for NIDDM in white population. Paris prospective study. Diabetes 1991; 40: 796 - 799

6 Eastman RC, Cowie CC, Harris MI. Undiagnosed diabetes or impaired glucose tolerance and cardiovascular risk. Diabetes Care. 1997; 20:127 - 128

7 Tuomilehto J, Knowler WC, Zimmet P. Primary prevention on non-insulin-dependent diabetes mellitus. Diabetes Metab Rev. 1992; 8: 339-353.

TABLE 3: NWT Prevalence Rates by Age Group and Gender 1999/2000



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members of the public. It is hoped that this report will increase awareness about cancer in the NWT and be used as a reference for planning and toward a greater integration and coordination of cancer prevention, screening, treatment, and support services.

The final chapter in the report provides some insight for developing an action plan on cancer control in the NWT. The benefits and disadvantages of a cancer-specific vs. a chronic disease strategy are briefly outlined. Examples of multiple stakeholders and their existing or potential involvement in cancer control are provided. Furthermore, a suggestion of how various components of cancer control would fit into the Integrated Service Delivery Model is conveyed. For more information on cancer in the NWT, you can refer to the full report, *Cancer in the Northwest Territories (1990-2000)*, at the Department website at www.hlthss.gov.nt.ca.

The risk for colorectal cancer, which is one of the most prevalent cancers in NWT males and females, is especially high among the Dene population, Inuit females and females residing in regional centres or smaller communities.

Data from the NWT Cancer Registry can only provide a descriptive profile of cancer in the NWT. This type of examination is best referred as cancer surveillance (i.e. the ongoing collection, analysis, and dissemination of data for controlling the impact of cancer in the population). Such descriptive analyses assist with identifying populations at risk and the types of cancers in which populations are at greater risk. For example:

- Although prostate cancer is the third most common cancer in NWT males, the risk in the NWT relative to Canada is much lower.
- The risk for colorectal cancer, which is one of the most prevalent cancers in NWT males and females, is especially high among the Dene population, Inuit females and females residing in regional centres or smaller communities.
- Pancreatic cancer, which does not often occur relative to the other types of cancer, have incidence and mortality rates that are significantly high in Non-aboriginal/Métis females and females living in Yellowknife.
- The Inuit population have cancer incidence rates similar to Canadians yet their mortality rates are higher.
- Lastly, the risk of getting cancer and dying from it are significantly higher in females residing in regional centres relative to females in Canada as a whole.

This analysis does not provide sufficient evidence to draw conclusions related to causality since the registry does not capture person-level information, such as the risk factors and health behaviours of individuals. But having completed an analysis describing who, what, where, and when, this can lead to the development of hypotheses and further research that can address the questions of why.

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2 Canadian Cancer Society. Retrieved December 2003 from http://www.cancer.ca/ccs/internet/standard/0,3182,3172_10175__langId-en,00.html

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4 American Cancer Society. Retrieved December 2003 from http://www.cancer.org/docroot/CRI/content/CRI_2_4_2x_What_are_the_risk_factors_for_cancer_72.asp?sitearea=CRI

5 Ibid.

6 Ibid.

7 Ibid.

8 Ibid.

9 Ibid.

10 Ibid.

11 Ibid.

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Although the first step to preventing the spread of this airborne disease is to diagnose the case and start treatment as early as possible, the next step is to find out who may have been exposed and have these people referred for contact tracing. For the three pulmonary cases reported in 2002, 176 contacts were investigated. One hundred and six contacts had a tuberculin skin test (Mantoux), 91 of which were negative. The remaining 15 contacts had Mantoux reactions indicating recent infection.

- 50% of these reactors successfully completed DOP treatment for LTBI.
- The remaining seven of the eight contacts were all young male adults. They were considered candidates for treatment of LTBI, but opted out of the treatment after being informed of the benefits and risks of such treatment. These seven contacts will be investigated for the possibility of active disease this year and will have periodic screening recommended thereafter.

Conclusion

As directed by the Chief Medical Health Officer, all active TB cases must be treated with DOT. However, it is the choice of the individual with LTBI to take DOP. In 2002 for instance, seven of the infected contacts who opted to be treated for LTBI completed DOP. Clients with LTBI who choose to take DOP, however, have a high success rate of completion. The twice a week visit allows time for the client to be assessed by the health care provider, be assured that their treatment is going well, and have the opportunity to address any concerns immediately. As such, since 1995, 100% of active TB cases in the NWT successfully completed DOT therapy; contributing significantly to preventing antituberculosis drug resistance and relapse of TB.

Although DOP is an excellent method to treat LTBI, until there is adequate capacity at the frontline of the healthcare system to institute this for all those who carry TB infection, new cases of TB will likely continue to occur. At the present time, resources are allotted to ensure every case of tuberculosis is treated by DOT but until the expansion of DOP occurs for all those with LTBI, we will not be able to substantially lower the annual rate of TB in the NWT. Having said that, the declining TB rates, treatment, completion, and cure, together with the absence of TB drug resistance, still remain as strong indicators that this standard of practice will help lead the way to stop TB. In the meantime, the vigilant front-line TB care providers continue to show care and commitment to ensure their clients are cured of this disease and infection.

HEALTH.online

Canada's Role in Fighting TB

Jennifer Carey, Evaluation Specialist, Department of Health and Social Services

Before embarking on my search to find a comprehensive Tuberculosis (TB) website, I had a few questions in mind: How is it contracted? What are the symptoms? Is it contagious? Is it treatable? A simple Google™ search not only directed me towards various sites that included information that would answer these questions, but within the first 10 links provided, I was able to locate a specific site that included the information I was looking for, and so much more.

What is Canada's Role in Fighting TB?

Accessed through the Lung Association's website at www.lung.ca/tb/index.html, *Canada's Role in Fighting TB* is a digital collection of information and teaching resources complete with pictures, graphs, and games produced under contract to Industry Canada's Digital Collections program by a team at the Saskatchewan Lung Association. Whether it is an explanation of the biology of TB and the way in which we deal with it, or finding out how TB was once fought, or learning why TB remains in Canada and what we are doing about it, this site provides you with the in-depth information you are looking for.

Canada's Role in Fighting TB Website

Although the site is not initially inviting, a little browsing within either of its three main categories (About TB, TB History, and TB Today) proves this site not only user-friendly, but capable of gearing its information to any audience—from elementary students to the general public.

Within each of the three main categories, you are presented with various sub-headings that are not only brief and to-the-point, but that also provide direct links to the terms they define within their glossary. These features make it quite easy for you to find the specific information you are looking for—preventing information overload. Moreover, no matter which sub-heading you may find yourself in, breadcrumbs are provided at the top of each screen showing you the trail of links where you have come from, making it impossible to get lost within the site.

One of the noteworthy features of *Canada's Role in Fighting TB* website relates to the activities that are provided within each of the three main categories. Included in the activities are:

- quizzes which test one's knowledge of TB and its history,
- a hangman game testing your knowledge of TB terms, and
- resistance games that teach the importance of adherence to a prescribed drug regimen for patients with tuberculosis.

Whether you are part of the general public just searching for TB-related information, or a teacher looking for TB resources, these activities are not only fun and engaging, but are also informative as well.

One feature that the site does lack, however, is a search engine. Instead, the site provides a searchable index, forcing the browser to find information by a pre-determined set of subject areas. Two other disappointing factors of the website include the inability to contact a webmaster to inform them of links that are down, nor does it state when the website was updated last. The latest rates available on the site for instance, date anywhere from 1925 to 1996—considerably outdated.

If it is TB-related statistics you are looking for, however, you would be wise to instead visit the Canadian Lung Association's website at www.lung.ca[a] which will provide you with the most current TB statistics available. The Canadian Lung Association's website is also an excellent internet source for providing PDF-format TB information in various languages ranging from Albanian to Vietnamese.

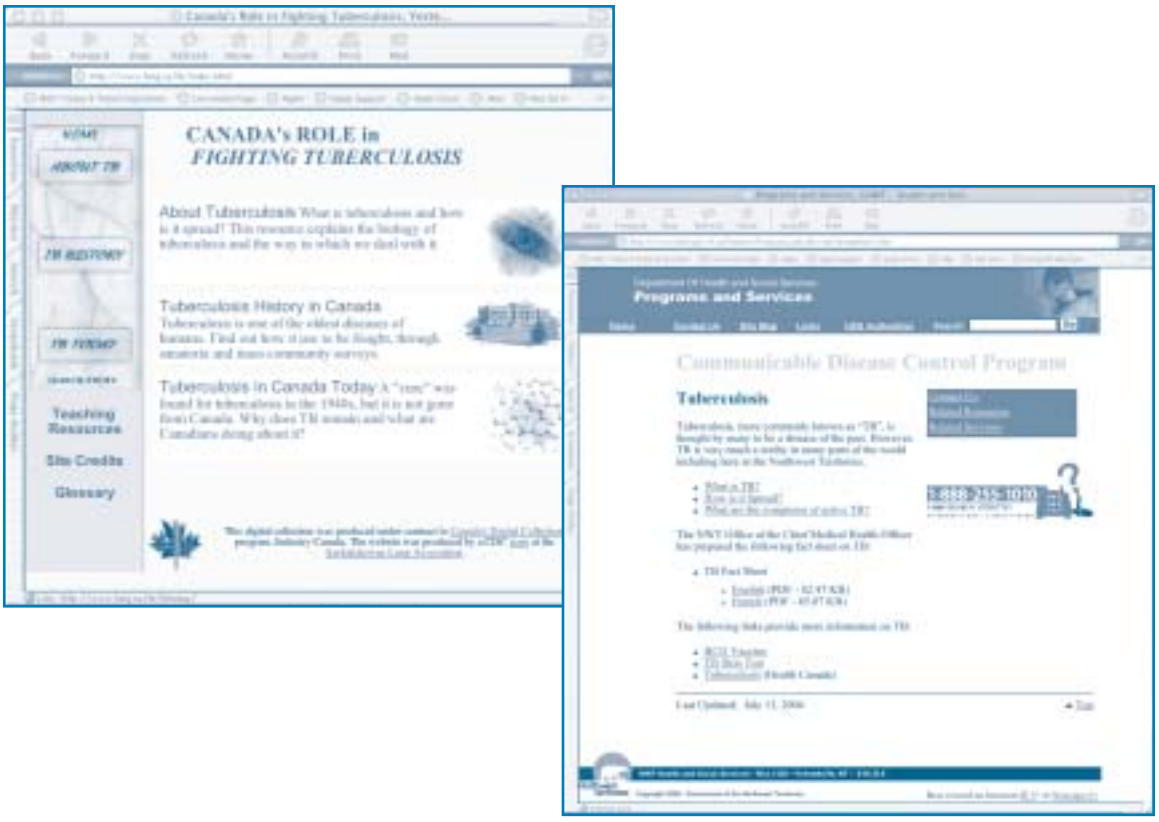
TB Website in the NWT

By accessing the Department of Health and Social Services website at http://www.hlthss.gov.nt.ca/, you can locate TB information relevant to the NWT via its Programs and Services link to the Communicable Disease Control Program page. Through this website, NWT residents can access brief and simplistic information as to what TB is, how it is spread, and what its symptoms are.

The site also provides links to fact sheets prepared by the NWT Office of the Chief Medical Officer, as well as links to NWT-related resources such as legislation, posters, and reports. Through its publications and reports links for instance, you can even download a copy of the status report of the *Action Plan to Strengthen Tuberculosis Management and Control in the NWT*.

What is new on the Department's website is the launch of the Tele-Care NWT, an information phone line for health and family supports. Therefore, if NWT residents are not able to find the TB information they are looking for on the internet, or simply do not have internet access, they can still obtain TB-related information by accessing Tele-Care's toll free number at 1-888-255-1010, 24 hours a day, 7 days per week.

Happy Surfing ☺



a You can link to this site via Canada's Role in Fighting TB website, and vice versa.

NOTIFIABLE diseases

for the Northwest Territories (NWT) January 2004 - March 2003[a]

		January - March 2004	January - December 2003
		NWT	NWT
Vaccine Preventable Diseases	Hepatitis B	0	0
	Haemophilus Influenzae	0	0
	Influenzae A	0	75
	Influenzae B	0	5
	Pertussis	0	0
	Chicken Pox	10	127
Sexually Transmited/ Bloodborne Diseases	Chlamydia	129	568
	Gonorrhea	30	209
	Hepatitis C	12	24
	Hepatitis, Other	0	0
	Syphilis	0	0
Diseases by Direct Contact/ Respiratory Route	Invasive Group A Strep	0	0
	Invasive Group B Strep in neonates	0	0
	Invasive Group B Strepococcus	1	0
	Invasive Pneumococcal Disease	0	11
	Legionellosis	0	0
	Listeriosis	0	0
	Meningitis, Other Bacterial	0	0
	Meningitis, Unspecified	1	0
	Meningitis, Viral	0	0
	Meningococcal Infections	1	1
	Respiratory Syncytial Virus	14	33
	Tuberculosis	7	12
Enteric, Food and Waterborne Diseases	Botulism	0	0
	Campylobacteriosis	1	7
	Cryptosporidiosis	0	0
	E.Coli 0157:H7	0	0
	Giardiasis	5	5
	Hepatitis A	0	0
	Salmonellosis	0	7
	Shigellosis	0	0
	Tapeworm Infestation	0	0
	Trichinosis	0	0
	Yersinia	0	0
Vectorborne/Other Zoonotic Diseases	Brucellosis	0	0
	Malaria	1	0
	Rabies Exposure	0	2
Antibiotic Resistant Microorganisms	Methicillin-resistant Staph.Aureus	3	6
	Vancomycin-resistant Enterococci	0	0

NWT HIV Infections Reported from 1987 to 2004

	Age Group at Diagnosis								*Gender*		*Risk Category*					
Total	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
25	1	0	0	4	14	5	0	1	3	22	11	1	6	5	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