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A new era of public health surveillance

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In the postmodern society and postindustrial global economy, *information* is said to be the new 'currency'. If this is true, it would follow then that a national surveillance network is more than just about counting, classifying, and tracing diseases. During the past two decades, issues of health care and health services delivery have dominated Canadian public discourse. Within this context, health surveillance's profile has been raised insofar as it promises to offer measures of accountability, all the while national jurisdictions and borders are evaporating in the globalizing world. In this 'new' world, threats to one's health may very well originate thousands of miles away, thus it is no surprise that in a changing environment of new health risks, new diseases and globalization, the rationale, objectives, and procedures of health surveillance also require adaptation.

Historically, health surveillance has been focused on births and deaths as well as tracking infectious diseases. However, modern-day surveillance has expanded its mandate to include the continual and systematic collection of health information, the analysis and integration of outcome specific data and the dissemination of these data to appropriate health personnel. The benefits of surveillance activities are multiple: establishment of baseline rates of disease; increased capability to predict and control an outbreak or epidemic; provision of a tool for the identification and evaluation of health priorities; and development of research programs or health promotion policies which are more in line with population health concerns.

Health surveillance, more than ever, is a key component in public health planning and policy. Beginning in the mid-1980s, health policy analysts and legislators became increasingly concerned about the continued sustainability of the *Canada Health Act*, realizing that its basic principles of accessibility, universality, portability, comprehensiveness and public administration were threatened. Public debates were complex and without a clear consensus, however, they helped to raise issues of public health accountability. It became evident that the ability to make decisions based on reliable and valid information, chart a persuasive health care strategy at federal, provincial and territorial levels, set relevant research agendas, and evaluate how well health risk factors are being monitored and controlled, was largely dependent on good surveillance data.

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FEATURE ARTICLE

International Circumpolar Surveillance (ICS)

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Since January 1, 1999, the Northwest Territories, Nunavut and all jurisdictions in Northern Canada and Alaska are participating in an international cooperative initiative of population-based surveillance of invasive *Streptococcus pneumoniae* (*Sp*) by all laboratories serving residents of the North American Arctic. This is the first phase of the International Circumpolar Surveillance (ICS) initiative, which aims to eventually include all circumpolar arctic nations in a system of population-based surveillance of invasive bacterial diseases. The reasons *Sp* was chosen as the target pathogen for ICS start-up are as follows:

- A major contributor to the respiratory disease burden at all ages, especially children less than two years of age;
- Alaska Natives were known to be at increased risk;
- Prevalence of strains resistant to antimicrobials is rising;
- Routinely identified by local laboratories in most jurisdictions;
- Amenable to serotyping and antibiotic susceptibility testing;
- Vaccine-preventable in infants and adults; and,
- Impact of routine infant immunization with conjugate vaccine, anticipated to be introduced soon in the US and Canada, can be observed.

participating in ICS through the submission of invasive *Sp* isolates (those identified in blood, CSF, or other normally sterile sites) to one of two reference laboratories in Canada. In Alaska, all 25 hospital laboratories serving the state's population submit invasive *Sp* isolates to the Arctic Investigations Program (AIP) laboratory in Anchorage. At the reference labs, serotyping and antimicrobial susceptibility testing are undertaken according to the National Committee for Clinical Laboratory Standards recommendations. Public Health consultants serving residents of the regions provide clinical and demographic information, including ethnicity and immunization status, on a standardized collection form. Laboratory and clinical data are forwarded to the ICS coordinator at the AIP.

Northern Canada's participation in ICS represents commitment and persistence on the part of laboratorians and public health practitioners throughout the north. As the surveillance is expanded in 2000 to include invasive *Haemophilus influenzae*, *Neisseria meningitidis*, and Groups A and B streptococci, increased vigilance will be required by participants for these occasional but important pathogens. Only by pooling observations at the local level can the data on these organisms be systematically amassed so that broad geographic and temporal comparisons are possible.

1999 Results

Thirty-four (34) isolates of *Sp* from Northern Canada and 119 from Alaska were identified in blood, CSF, or other sterile sites, and were forwarded to reference labs participating in ICS in 1999. Of the 34 from northern Canada, nine (26%) were from the Northwest Territories and twelve (35%) from Nunavut. Overall and region-specific numbers and rates appear in Table 1. The total number of reported cases is small, thus, rates generated for Northern Canada and its sub-regions are unstable and should be regarded only as an indication of relative differences.

While Canadian population estimates of the incidence of invasive pneumococcal disease are scanty, a regional estimate of 7.5/100,000 population in the Toronto region has been generated.¹ In the United States, the overall incidence of invasive *Sp* is estimated at 15-30/100,000 population. In Alaska Natives, it is estimated at 74/100,000 and 624/100,000 in Alaska Natives less than two years of age.²

As of January 1, 1999, fourteen Canadian laboratories providing diagnostic microbiology services for all residents of the Northwest Territories, Nunavut, Yukon Territory, Northern Quebec and north coastal Labrador, began



¹ Nuorti J. P., et al. "Cigarette smoking and invasive pneumococcal disease", *NEJM* 2000, 342(10): 681-689.

² "Prevention of Pneumococcal Disease: Recommendations of the Advisory Committee on Immunization Practices (ACIP)", *MMWR*, April 4, 1997, 46(RR-08): 1-24.

Table 1.

Region	Population	<i>Sp</i> isolates (number)	<i>Sp</i> Rate (per 100,000 population)
Northwest Territories	41,600	9	22
Nunavut	27,000	12	44
Overall Northern Canada	132,051	34	26
Alaska	621,000	119	19

Number of *Sp* isolates and rate of invasive *Sp* per 100,000 population for regions participating in ICS, 1999.

Cases ranged in age from infancy to 97 years, and males and females were equally affected. Age group specific rates reveal an elevation amongst children <2 and adults > 65 years of age (Table 2), as demonstrated elsewhere for invasive *Sp*.

Table 2.

	Northern Canada	Alaska
All ages	26	19
Children < 2 years of age	191	157
Persons 2- 64 years of age	16	11
Persons >65 years of age	65	70

Rate of invasive *Sp* per 100,000 population in specified age groups, ICS, 1999.

Participating jurisdictions agreed to provide ethnicity data on reported cases in the following categories: Inuit, First Nations, Métis, and non-Aboriginal. In Alaska, ethnicity provided in the following groups: Aleut, Eskimo, American Indian, non-Native, and Unknown. Overall, the non-Aboriginal group displayed the lowest rate of invasive *Sp* disease.

In Northern Canada, Aboriginals comprise 55% of the population but exhibit 94% of the reported cases of invasive *Sp*. Similarly, Alaska Natives make up 17% of the state population and experience 51% of the reported cases of invasive *Sp*. The rate in 1999 for Alaska Natives is more than six times that in non-Natives. Case numbers are too small in Northern Canada after only one year of surveillance to provide a reliable comparison rate between Aboriginal and non-Aboriginal residents.

Clinical Presentation

Considering the 153 cases reported from Northern Canada and Alaska combined, pneumonia (55%) or sepsis (17%) were the most frequent clinical presentations reported. Other presentations included meningitis, empyema, peritonitis, endocarditis, pericarditis, and epiglottitis. Pneumonia occurred along with empyema (4 instances), meningitis (1), peritonitis (1), pericarditis (1), and septic arthritis (1).

Information on concurrent medical conditions and other risk factors or behaviours for adult cases were noted at the discretion of the data-gatherer and thus cannot be regarded as a complete tally representing all cases. An individual may have more than one risk factor noted. In adults aged 20 and higher, smoking, chronic lung disease +/- asthma, alcohol abuse, immunosuppressive therapy, diabetes and injection drug use were the most frequently noted risks. For cases younger than 20 years, the most frequently noted risk factor was chronic lung disease +/- asthma. Smoking and alcohol abuse were not noted in this younger age group.

Other risk factors or behaviors noted for two or more cases included prematurity (4), asplenia (4), HIV infection (4), homelessness (4), prior history of anemia (3), "other" illness (3), leukemia (2), other malignancy (2), congestive heart failure (2), CSF leak (2), and cirrhosis (2).

Serotypes of Pneumococcus

Ninety serotypes of *Sp* are recognized, differentiated by characteristics of the bacterial capsule. While the ICS mix of common serotypes is similar to that reported in Canada and Alaska (Table 3), the proportion of individual serotypes, notably the preponderance of type 01, is different than in temperate zones of North America.

Table 3.

Northern Canada, 1999 Serotype (% of cases)	Alaska, 1999 Serotype (% of cases)	Alaska, 1991-1998 Serotype (% of cases) ³
01 (23.5)	14 (16.2)	14 (15.7)
14 (14.7)	7F (8.5)	04 (10.6)
04 (11.8)	6B (7.7)	6B (9.4)
6A (8.8)	9V (6.8)	9V (8.1)
9V (8.8)	04, 19F (6.0 each)	01 (6.9)

Most frequently encountered pneumococcal serotypes amongst ICS cases in 1999 in descending frequency, and serotypes seen in the Alaska surveillance of 1991 to 1998.

³ Rudolph K.M. *et al.* "Serotype Distribution and Antimicrobial Resistance Patterns of Invasive Isolates of *Streptococcus* Pneumoniae: Alaska, 1991-1998", *JID*, 182: 490-6. 2000.

Vaccine-Preventable Cases and Deaths

The 23-valent pneumococcal polysaccharide vaccine licensed in Canada and the US for those aged two years and older, contains capsular antigens of serotypes responsible for >90% of invasive disease in the pre-vaccine era (serotypes 1, 2, 3, 4, 5, 6B, 7F,8, 9N, 9V, 10A, 11A, 12F, 14, 15B, 17F, 18C, 19A, 19F, 20, 22F, 23F, and 33F). While disease caused by these serotypes is theoretically "vaccine-preventable", the *actual* preventable cases only are those which occur in persons for whom the vaccine is recommended but not administered.

In the US, in early 2000, a 7-valent conjugate pneumococcal vaccine was licensed for infant use and licensure is expected soon in Canada (serotypes 4, 6B, 9V, 14, 18C, 19F and 23F). Implementation of this vaccine in publicly funded programs for all infants is anticipated to reduce the impact of invasive *Sp* caused by these serotypes in the vaccinated infants.

Of cases of invasive *Sp* reported to ICS in 1999, Table 4 shows the proportion which were theoretically vaccine-preventable.

Table 4.

	Northern Canada 1999	Alaska 1999	Alaska 1991-1998
Cases >2 years old with serotype in the 23-valent pneumococcal polysaccharide vaccine	83%	86%	92% of cases in all ages
Cases < 2 years old with serotype in the 7-valent pneumococcal conjugate vaccine	62% (5/8 children)	90%	72% of Native and 84% of non-Native children < 5 years old
Deaths (all ages) for which the serotype was contained in the 23-valent pneumococcal vaccine	3/3	16/19	

Proportion of cases and deaths which are theoretically vaccine-preventable, as reported to ICS in 1999. Alaska figures for 1991-1998 are provided for comparison.

Antimicrobial Susceptibility

The proportion of penicillin non-susceptible strains of *Sp* has been increasing over two decades in many areas of the developed world. Strains with intermediate resistance to penicillin were observed in Alaska in the 1980s and the first with full resistance to penicillin appeared in 1993. The proportion of penicillin non-

susceptible strains in Alaska ranged from 5.3% in 1991 to 19.6% in 1999. Non-susceptibility of Alaskan strains has been noted to cefotaxime, tetracycline, trimethoprim-sulfa, erythromycin, clindamycin, chloramphenicol, ofloxacin, but not to rifampin, trovofloxacin, or vancomycin. Multi-drug-resistant (MDR) isolates in Alaska, defined as those resistant to two or more classes of antibiotics, have risen from less than 5% to over 20% through the 1990s.

Based on 1999 ICS data, the proportion of penicillin-non-susceptible strains in Northern Canada is lower than elsewhere in North America. Penicillin resistance was seen in only two strains in Northern Canada (6% of isolates), both serotype 9V. These strains also were fully resistant to trimethoprim-sulfa, and intermediately resistant to ceftriaxone, making them multi-drug resistant. Two other strains were penicillin-susceptible but intermediately resistant to trimethoprim-sulfa (serotypes 18C and 6A); the non-susceptibility of these strains would have been missed if only Oxacillin susceptibility screening was being performed.

Summary

The rate of invasive *Sp* seen in 1999 in Northern Canada is the same order of magnitude as that seen in Alaska but is 37% higher. This may represent a chance observation, a real difference in disease rates, or a proportionally higher capture of cases by the surveillance system. Baffin Island and Northern Quebec show the highest rates of invasive *Sp* in Northern Canada in 1999. Age-specific rates of disease show the expected relative magnitude as in Alaska, but the rate in Northern Canada in children less than 2 years of age is higher than in Alaska. Additional data are required before confidence about the size of this differential is achieved. If the pattern persists, it may reflect true differences in host factors governing susceptibility to invasive disease, or environmental and social conditions which promote the likelihood of infection.

Antimicrobial resistance by *Sp* strains, seen to emerge in Alaska over the past two decades, appears low in Northern Canada. Further data collection is required to assess the magnitude and stability of this difference.

Acknowledgments

The ICS is a cooperative project presently funded by the National Center for Infectious Disease, US Centers for Disease Control and Prevention, Atlanta, Georgia, and by the Laboratory Centre for Disease Control (LCDC) in Ottawa, Canada.

Pandemic Influenza: NWT Contingency Plan

Another flu season is quickly approaching Canada. Influenza vaccine experts have already identified the most likely strains to cause flu outbreaks this year. An influenza vaccine has been produced on the basis of this information, allowing us to offer protection to our population. Public health care workers across the territory began to administer the vaccine in early October, with priority assigned to those at highest risk of adverse consequences due to the flu. Assuming that the vast majority of high-risk residents will be vaccinated, we can be confident that we are relatively well prepared for the flu season.

Nonetheless, many people will experience sudden onset of the flu resulting in some social disruption before the 2000 - 2001 season ends. This will occur despite the availability of a vaccine because not everyone gets vaccinated. However, what if a *new* influenza strain was discovered to threaten severe disease in human populations? Imagine widespread influenza resulting in high rates of illness and mortality because a vaccine was *not* available. Experts from the World Health Organization (WHO) predict that there is a high probability that another pandemic influenza will occur within the next five to ten years.

What Causes Pandemic Influenza?

The influenza virus is transnational; it circulates world-wide all the time. Genetic variation occurs annually in the influenza virus strains due to spontaneous mutation, which is referred to as a "genetic shift". Various strains of influenza virus, for example, exist in avian, domestic animals and humans. Given the right opportunity, RNA segments, the genetic material from the various influenza strains, can reconstitute themselves or mix to form a "new" influenza. In point of fact, this mutation is occurring all the time, but usually the newly formed viruses do not survive or do not spread. In rare occasions, they are highly infectious to humans and can proliferate rapidly. It is these new viruses that can, potentially, result in an influenza pandemic.

During the Pandemic Flu of 1918, over 20 million people died worldwide. In Canada, more than 30,000 deaths were recorded due to influenza. Two more outbreaks have occurred since then: the Asian Flu in 1957 and the Hong Kong Flu in 1968.

The Hong Kong Avian Flu in 1997, otherwise known as the *bird flu*, had many international scientists concerned about the possibility of a pandemic. The Hong Kong Avian Flu infected eighteen people and of those six died. *Millions* of chickens were slaughtered to prevent the emergence of a "new" virus. Fortunately the Hong Kong Avian Flu virus spread from chicken to human only; there was no human to human transmission.

A Pandemic Scenario

- *There will be a short lead-time; 1 to 5 months from the time of first global identification to full-scale pandemic.*

Consider that in 1918, transcontinental travel was by ship, crossing oceans in weeks or months. Today a person can get almost anywhere in the world within 24 - 48 hours.

- *There will be a shortage of vaccines and antivirals.*

A new strain will mean that a vaccine will not be readily available to combat this disease at the onset. We can expect vaccines produced up until that point to have little or no effect, thus no one will have immunity.

- *Development of a vaccine will begin as soon as a new strain of influenza is discovered.*

It will take a minimum of three months to begin production of a dependable vaccine employing current methods, yet demand for the vaccine will be high and supplies will be limited.

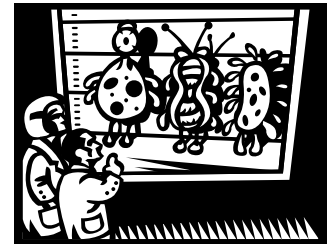
- *Media and public scrutiny will be intense and unrelenting.*

Pandemic Planning

The 1997 Hong Kong Avian Flu heightened WHO's awareness that a pandemic can occur at any time. Pandemic guidelines were first implemented during that flu outbreak and were subsequently revised.

The Canadian Contingency Plan for Pandemic Influenza was first drafted in 1988 and later revised in 1996. The purpose of the plan is to enhance Canada's capacity to respond to such a pandemic event, to decrease associated mortality, morbidity, and to contain the effects of societal disruption. Specifically, Health Canada would coordinate the plan's implementation should a pandemic occur,

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maintain national influenza surveillance activities, and secure adequate vaccine and antiviral supplies. Provinces and territories will implement other features of the plan including delivery of the vaccine to the public, communication management, and provision of acute care.

NWT Contingency Planning

In January 2000, representatives from the NWT attended the Local, Provincial, and Territorial *Pandemic Influenza Contingency Planning* meeting organized by Health Canada. The primary objective of the meeting was to identify contingency planning requirements for the NWT and its communities. There is a huge task ahead for the development of a plan that will prepare all communities to effectively deal with a pandemic. Although the NWT plan would share similarities with that of provincial strategies, it will need to take into account the unique health care delivery system in this vast Northern territory.

Since the January 2000 planning meeting, five national working groups have been formed, each with a specific mandate: surveillance, vaccine and antivirals, communication, emergency preparedness, and health services. All groups have, as a primary goal, the development of guidelines that can also assist all provinces and territories with planning at the local and community levels.

To date, territorial participants are involved with surveillance, vaccine and antivirals, and communication working groups. Implementation of the annual flu vaccine program is well underway in all communities in the NWT. Although the vaccine is a major area of focus, surveillance and communication are both critical components in order to curtail outbreaks of influenza in long-term care facilities and to provide the general public with periodic updates on flu activity.

Surveillance

Surveillance is stepped up during the flu season annually at national, territorial and local levels. The national influenza surveillance program, *FluWatch*, aims to provide timely data reflecting influenza activity in Canada occurring between October and April annually.

FluWatch consists of three main components:

- Laboratory-based influenza virus identification;
- Influenza-like illness reporting by sentinel physicians; and
- Reporting of influenza activity level by a provincial and territorial epidemiologist.

During the flu season, there are five designated sentinel sites in the NWT reporting influenza-like illness. As well, laboratory reports from Alberta Provincial laboratory and reported cases from community health centres, hospitals, and physician offices are sent to the Health Protection Unit (GNWT Department of Health & Social Services). This information is compiled into weekly *FluWatch* reports for national distribution.

Vaccine and Antivirals

Federal, provincial and territorial representatives have been working on a *Memorandum of Understanding* (MOU) for vaccine procurement, including vaccine production in Canada and securing federal dollars to assist with the cost of the vaccine. During a pandemic, health officials from federal, territorial and board levels would prioritize and coordinate vaccine distribution to target groups. For example, one strategy would involve vaccinating health care workers, emergency personnel, and other essential personnel such as RCMP, firefighters, water delivery/sanitation workers, and power plant operators.

Fall is the time to enhance vaccine coverage during the inter-pandemic phase, ideally during the annual flu season and include administering pneumococcal vaccine to all high-risk groups as outlined in the national immunization guide.

Communication

Communication is a key factor for any influenza program. Every flu season, an article is published in *EpiNorth* highlighting the vaccine for the present year and clearly identifying priority groups who should receive the vaccine. Posters and public service announcements are distributed in public areas in all communities explaining who should get the vaccine. Information is provided about when and where to go to be vaccinated. As well, information is distributed to inform the general public about what an influenza is and what to do if one gets it. Local newspapers and radio stations assist with public service announcements. An effective communication strategy will result in heightened public awareness about the need to get vaccinated annually, as well as help to identify “high-risk” groups such as the elderly, the chronically ill, and health care workers. A well-thought and well-executed communication plan will be a critically important step during an influenza pandemic.

Emergency Preparedness

There are territorial and community emergency plans in place to deal with sudden disasters such as an extended power outage or a jet crash. These types of disasters are often localized and occur during a fixed timeframe. For example, during the ice storm in eastern Canada, military personnel, power line workers as well as material resources were mobilized to assist those most seriously affected. A pandemic, however, is not a discrete, fixed event; rather, it occurs everywhere and is most likely to strike various parts of the territory *simultaneously*. Therefore, assistance from outside agencies would be very limited. This reality forces us to plan strategically; beginning with good surveillance, identifying appropriate key personnel in the health services, developing a plan for an efficient distribution of vaccines and antivirals, and launching effective communication

campaigns. For the NWT, considerations must be made as to how to best service a population with limited health care resources. Such a plan will necessarily have to take stock of, for example, number of beds, number and availability of temporary treatment facilities, limited quantity of antiviral drugs, and availability of respirators.

Conclusion

A pandemic influenza will have devastating global effects. Countries, provinces, territories and communities will have to have a contingency plan in place to responsibly deal with the disease burden of the outbreak, as well as the anticipated degree of social disruption this will inevitably entail. In the NWT, the goal is to develop sound planning for the annual flu season and to build on this foundation in order to develop equally sound planning for a pandemic. Effective communication, distribution of vaccines and antivirals, accessibility to health services, and a good surveillance network will be all in place for each flu season and will, undoubtedly, place us in a good position should a pandemic strike.

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1. “Canadian Contingency Plan for Pandemic Influenza” (draft report), *Health Canada*, January, 2000.
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Antibiotic Watch!

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Penicillin and its relatives can no longer be viewed as magic bullets with which to cure all ailments. As the incidence of disease caused by antibiotic-resistant microorganisms increases, the over-use of antibiotics continues to be a serious concern for health care professionals and the public. Since 1999, *Staphylococcus aureus* (MRSA) and vancomycin resistant *enterococci* (VRE) have been reportable in the NWT. Data collected to date is presented in Table 1.

Table 1.
NWT and Nunavut Combined Cases of Methylcylin Resistant *Staphylococcus aureus* (MRSA) and Vancomycin Resistant *Enterococci* (VRE).

	Cases MRSA	Cases MRSA per 100,000	Cases VRE	Cases VRE per 100,000*
1998	4	9.7	1	2.4
1999	3	7.2	0	0.0
2000**	6	14.4	1	2.4
1998-2000***	13	31.2	2	4.8
Mean	4.3	10.4	0.6	1.6

* Rates based on NWT population estimates for 1998 and 1999 (41,075 in 1998 and 41,606 in 1999).

** Rates for 2000 based on 1999 population estimates.

***Rate for 1998-2000 based on population estimate for 1999.

The Northwest Territories takes the threat of emerging “superbugs” very seriously and therefore is supporting the development of an antimicrobial resistance steering committee (ARSC). The group currently consists of health care professionals and will be expanded after the development of an official mandate to include members of the public as well. Other provinces, such as Newfoundland, have already developed and implemented optimal antibiotic protocol, with a resultant reduction in their antibiotic usage.

Overall, Canada could do a better job of regulating the use of antibiotics, especially when compared to more cautious nations such as the Netherlands and Scandinavian countries. Ways to reduce the prevalence and slow down the evolution of antibiotic resistant microorganisms include reducing the use of antibiotics and ensuring that appropriate antibiotics are selected. The development of national and territorial/provincial committees that deal with regulating the use, and curbing the abuse, of antibiotics is a step in the right direction.

Currently involved in the development of the work plan for the ARSC are: a communicable disease consultant; physicians (both generalists and specialists); regional medical health officers; infection control officers; pharmacists; nurses; laboratory technologists; and a dental representative. The group has met several times over the past year to develop a work plan and objectives. The work plan entails:

- Collection of baseline data on antibiotic usage;
- Development of treatment guidelines for common bacterial infections/illnesses;
- Enhancement of the utilization of current vaccines;
- Development of communications/ educational strategies for both health care workers and the public;
- Enhancement of the surveillance for antimicrobial resistant organisms, and;
- Development of empirically supported approaches to prevent and contain antimicrobial resistance.

For more information about ARSC and its initiatives or membership information, please contact Wanda White, Communicable Disease Consultant, Health Protection Unit, (867) 920-8877.

Antibiotics are different than other drugs - they are changing the ecology and evolution of microorganisms.
- Dr. Jim Hutchinson



Nonoxynol-9 and HIV

The results of a recent study on the use of Nonoxynol-9 (N-9) as a microbicide were presented at the XIII International AIDS Conference held in Durban, South Africa, July 9-14, 2000. Results indicate that N-9, a product widely used in spermicides, is not only ineffective in preventing HIV transmission, but may actually *increase* the chance of transmission.

Between 1996-2000, UNAIDs sponsored a randomized controlled double-blind research study to examine the effectiveness of N-9 in preventing the transmission of HIV. The research subjects, HIV negative sex trade workers (n=1,000) who used N-9 spermicide gel, were infected with HIV at approximately a 50% higher rate than women who used a placebo gel (15.5 versus 10.2 infections per 100 person-years)¹. In addition, the more frequently the N-9 gel was used (without a condom) the higher the risk for contracting the HIV virus. In this high-risk group, N-9 gel did not protect against HIV infection and may have facilitated the transmission of the HIV virus, as N-9 can cause genital irritation and inflammation of the mucosal membranes. Clinical trials have shown that N-9 can cause inflammation of the mucosa when applied to the rectum or vagina and resultant lesions can act as an entry for HIV and other sexually transmitted pathogens. Adverse effects, however, may not be seen at the same level for individuals using spermicides with N-9 less frequently or in different dosage formulations.

The conclusion from this study is clear: Nonoxynol-9 is ineffective against HIV transmission. This finding has direct bearing on public health policy and disease prevention strategies. N-9 should not be recommended as an effective means of HIV prevention. Probably, the benefits of any N-9 lubricated condom outweigh the risk of using no condom at all, however, the best STD and HIV barrier is a latex condom without N-9. Condoms lubricated with N-9 should not be used for anal intercourse. Women using condoms lubricated with N-9 should be provided with information regarding the potential for irritation of the

vaginal and cervical mucosa and the increased likelihood of HIV infection. In Canada, products which contain Nonoxynol-9 include certain condoms, spermicides, vaginal foams, vaginal sponges and oil- or water-based lubricants.²

These findings also point to the urgent need to identify an effective microbicide given that, globally, 7,000 cases of new HIV infections are recorded each day, and that more than 330 million cases of STDs are recorded each year.³

Representatives of UNAIDs and the Centers for Disease Control and Prevention will be working in consultation to revise public health and prevention guidelines for the use of Nonoxynol-9 for both HIV and pregnancy prevention, especially for populations at high risk for HIV.

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SALE
sex

¹ Centre for Infectious Disease Prevention and Control, *EpiUpdate*, September 2000.

² Products licensed for sale in Canada which contain Nonoxynol-9 spermicide include: Trojan-ribbed Condom with Nonoxynol-9 Spermicide Lubricant, Gynol II Contraceptive Jelly with Nonoxynol-9, Lifestyles Spermicidally Lubricated Condom with Nonoxynol-9, Hardcover Ultra Condom with Spermicide Nonoxynol-9, KY Plus Jelly spermicidal lubricant, Advantage 24 Vaginal Contraceptive Gel, and Delfen Foam.

³ Centers for Disease Control and Prevention, "Nonoxynol-9 Warnings", [letter] August 4, 2000.

Osteoporosis: Risk Factors, Prevention and Treatment

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Osteoporosis is a disease characterized by low bone mass and deterioration of bone tissue. This process leads to increased bone fragility and risk of fracture, particularly of the hip, spine and wrist. Osteoporosis is often called “the silent thief” because bone loss occurs without symptoms. Individuals may not know they have osteoporosis until their bones are so weak that a strain, bump or fall causes vertebrae to collapse or a fracture to occur.

In Canada 1.4 million persons suffer from osteoporosis. This disease affects one in four women and one in eight men over the age of 50 years, and can strike at any age, thus dispelling the myth that osteoporosis is an *older person’s disease*. The incidence of persons diagnosed with osteoporosis by age, ethnicity, and sex in the Northwest Territories is as follows:

Table 1.
NWT STATUS COMPARISON
1 9 9 8

Status	Number	%
Dene/Métis	21	41.2
Non-Aboriginal	26	51.0
Inuit	4	7.8
Total	51	100

Table 2.
NWT GENDER COMPARISON
1 9 9 8

Gender	Number	%
Female	46	90.2
Male	5	9.8
Total	51	100

Table 3.
NWT RATE, PER 10,000 POPULATION
1 9 9 8

Age	Female	Male	Total
< 50	4.6	0.0	2.2
50-69	122.0	3.7	57.7
70+	190.5	78.7	135.5
Total	22.9	2.3	12.2

Source for all tables: Department of Health & Social Services, Medicare Database (ICD-9 = 733.0 -733.09)

Risk Factors

The outward signs of osteoporosis are usually not evident until osteoporosis is quite advanced. These include a broken wrist, rib or hip. Signs of a vertebral fracture include, back pain, (mainly in the mid to lower spine), loss of height (more than one inch), a stooped, round-shouldered appearance, and a hump forming in the upper back. Risk factors which, unfortunately, cannot be changed include:

- *Gender* – Risk is greater with women as they have less bone tissue and lose bone more rapidly than men because of menopausal changes.
- *Age* – Bones become less dense and weaker as you age.
- *Body size* – Small, thin-boned women are at greatest risk.
- *Ethnicity* – Caucasian and Asian women are at highest risk. African-American and Latino women have a lower, but still significant risk.
- *Family history* – People whose parents have a history of fractures also seem to have reduced bone mass and may be at risk for fractures.



Risk factors which can be changed or treated include:

- Sex hormones: amenorrhea (absence of menstrual flow), low estrogen (menopause), and low testosterone in men.
- Anorexia
- Lifetime diet low in Calcium and Vitamin D.
- Use of medications such as Glucocorticoids (used as an anti-inflammatory in some conditions) or some anti-convulsants.
- An inactive lifestyle or extended bedrest.
- Cigarette smoking.
- Excessive use of alcohol.

Costs Associated with Osteoporosis

The financial costs of treating osteoporosis and resulting fractures are estimated at approximately \$1.3 billion in Canada alone. The majority of the costs is related to hospital and long-term care. It is estimated that over the next 25 years Canada will spend \$32.5 billion treating osteoporotic fractures if there is not an increase in prevention and treatment strategies. The human cost is no less dramatic. Osteoporosis often results in a reduced quality of life, disfigurement, lowered self-esteem, reduction or loss of mobility and decreased independence. Seventy per cent of the annual 25,000 hip fractures in Canada are related to osteoporosis. Death results in approximately 20% of these cases and disability in 50%.

Prevention Strategies

Calcium

Calcium is essential to bone health. In childhood, it is necessary to grow a healthy skeleton to support the growing body. By 20 years, bones typically stop growing in length. It is currently believed that peak bone mass is reached by this age. Calcium is less efficiently absorbed as you age. In spite of this, studies show that older adults can decrease bone loss and reduce the risk of fracturing. It is therefore necessary to be more vigilant about calcium intake to protect bones as you age. Calcium absorption during menopause seems to slow down due to the increase in estrogen. Regardless of age, both adequate calcium intake and physical activity are a necessary part of a person's osteoporosis prevention and treatment plan.

Recommended Daily Calcium Intake

Age	Intake
7 to 9 years	700 mg
10 to 12 years (boys)	900 mg
10 to 12 years (girls)	1200-1400 mg
13 to 16 years	1200-1400 mg
17 to 18 years	1200 mg
19 to 49 years	1000 mg
50 years and over	1000-1500 mg

Calcium Intake through Diet

Foods which contain calcium and are easily absorbed, such as dairy products, soya products such as tofu or soya milk, vegetables such as broccoli, collards, kale, mustard greens as well as bones in fish such as canned salmon and sardines, are highly recommended. Although spinach, beet greens, chard and rhubarb contain calcium, these foods also contain oxalates which bind with calcium and interfere with its absorption in the body. Nonetheless, these foods do have numerous other nutritional benefits to be derived for the body.

Sources of Calcium Loss

- *Sodium* – Over 90% of sodium comes from food rather than from table salt. Increased salt has been shown to increase the loss of calcium through the urine.
- *Caffeine* – This includes not only coffee, but tea and colas. Two to three cups is not likely detrimental, provided the calcium intake is up to par. It is advised to have at least one cup of milk per cup of coffee or cola.
- *Protein* – In recommended amounts protein has a limited effect on calcium. Excess protein can cause an increase in calcium loss in urine. Most proteins also have other desirable nutrients so should not be cut from diet.

Vitamin D

Vitamin D plays an important role in the absorption of Calcium. It is synthesized in the skin through natural exposure to the sun. While many people can obtain it naturally, those who are housebound or in a northern environment may require a supplement to ensure a daily intake of between 400 and 800 IU. In Canada, milk is fortified with Vitamin D and therefore is an excellent source.

Exercise

Physical activity is a necessary part of a person's osteoporosis prevention and treatment plan. The best exercise for your bones is weight bearing exercises such as walking, hiking, jogging, stair-climbing, weight training, tennis and dancing.

Detection & Treatment

A comprehensive medical assessment followed by bone mineral density testing is recommended to:

- detect low bone density.
- confirm a diagnosis of osteoporosis following a fracture.
- predict chances of fracturing in the future.
- determine rate of bone loss and effects of treatment if testing is conducted at intervals of a year or more.

Hormone therapy seeks to supplement the hormones that ovaries stop making at menopause. It can consist of estrogen alone or estrogen and progesterone in some combination. It is not intended to replicate premenopausal hormone levels, but provide the lowest levels to protect bones against osteoporosis. Hormone therapy is advised under the following conditions:

- Women entering menopause with many of the risk factors. The postmenopausal osteoporosis is best prevented if therapy begins at time of menopause and continues for 10 years.
- Women with early or surgical menopause.
- Women in their 40's who begin to show signs of bone density loss, especially if they have risk factors.
- Women many years past menopause, to decrease chances of osteoporosis.

Risks associated with Hormone Therapy

There may be a link between hormone therapy and breast cancer, largely due to inconsistent research results. Most experts feel that hormones are safe up to and even more than 10 years. It is recommended that it be continued for up to 15 years for maximum effect on bone density. On the upside, hormone therapy can also provide protection against heart disease, colon cancer, Alzheimer disease and stroke. Hormone therapy should not be used by persons experiencing history of unexplained vaginal bleeding, active liver disease, breast cancer, or active vascular thrombosis.

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1. The Osteoporosis Society of Canada website:
<http://www.osteoporosis.ca>
2. National Institutes of Health Osteoporosis and Related Bone Diseases National Resource Center website:
<http://www.osteoporosis.org>
3. GNWT, Department of Health and Social Services, Population Health, Research & Analysis Unit.

Continued from Cover Page...

Most Canadian surveillance programs were initially intended to support communicable disease control activities for both provincial and territorial governments. Traditionally, health departments carried out this task, yet, in recent years there has emerged a need for a more complex partnership among key health stakeholders. The increase in non-communicable disease surveillance systems, as well as the increased emphasis on risk factor surveillance, have indicated the need for a network for all surveillance activities whether in the federal or provincial/territorial governments. An integrated and consolidated public health surveillance system would provide a more holistic picture and make certain that decisions are based on comprehensive, accessible and timely data. As well, an integrated surveillance system would ensure an alignment between federal and provincial/territorial activities so as to avoid fragmentation, duplication, information gaps, and inaccessibility to important health information.

Of course, this development is contingent upon the successful implementation of a national electronic information system. Generally, the health sector, unlike other private and public organizations, has not kept pace with the new information and communication technologies. Northern and rural parts of Canada, however, seem to be the exception on this account, having recognized the benefits of electronic information systems in overcoming the communication challenges associated with health delivery in remote settings. Recent years have witnessed a real explosion of information technology which could offer new potential for health surveillance. Though every province/territory has created its own health information network, “key health sector nodes” cannot yet deliver inter-provincial communication resulting in a system that is characterized more by its fragmentation than its need for cohesive integration.

In 1997, the National Health Surveillance Infostructure was initiated and as part of its mandate called for the establishment of a Network for Health Surveillance in Canada which would enhance the “capacity” for health surveillance at all levels. Its general mission is to build “relationships, standards, tools, and connections needed so that public health decision-makers anywhere in Canada” can access health information via the Internet.¹ Essentially, what is being put in place is the requisite infrastructure to undertake health surveillance across Canada. This project is predicated on inter-sectoral and jurisdictional collaboration and its prime intent is to systematically collect longitudinal, population-specific health data that is not only responsive to local/regional health needs, but is also in line with increasing national-level standardization of health surveillance protocols.

The First Ministers of Health have called for an “action plan” to mobilize a national health “infostructure”, including the development of technologies like telehealth and electronic patient records.² While cognizant of the need to maintain the privacy and confidentiality of personal health records, this initiative specifies the rationale and mechanisms with which to achieve integrated and more compatible health information networks in order to facilitate “...the rapid transfer of knowledge newly required to reduce the burden of illness and injury in Canada and the world.”³

The development of a national health surveillance network is a formidable task given that data and information required at all levels of the Network are not the same due to differing needs and uses. Part of the impetus for its creation is the need to make the rationale behind health decisions and health policy transparent and accountable. This initiative brings us forward into a new era of public health surveillance - one that is more complex yet, potentially, more responsive to the requirements of health practitioners, researchers, planning and policy decision-makers, and the Canadian public, in general.



¹ Network for Health Surveillance in Canada, [Strategic Plan, April 2000-March 2003], February 14, 2000: 4

² First Minister's Meeting Communique on Health, September 1, 2000: 4.

³ Health Canada, Integrated National Health Surveillance Network for Canada [Discussion Paper], 1998.

Seasonal Affective Disorder (SAD)

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It seems safe to say that most of us experience some degree of mood change during the long, dark, and cold arctic winters. However, seasonal affective disorder (SAD), somewhat aptly abbreviated, is not simply the 'winter blues', but rather a form of clinical depression which significantly impairs the suffering individual's functioning. It is considered a subtype of major depressive disorder, with a seasonal pattern of major depressive episodes. That is to say, people with SAD suffer the same symptoms as those with major depression, but only during the autumn and winter months. These symptoms include a prolonged sense of sadness or low mood, extreme fatigue and low energy, a tendency to sleep and eat more than usual, marked carbohydrate cravings, and weight gain. Furthermore, seasonal depressive episodes must occur for at least two consecutive years and not be related to seasonal related psychosocial stressors such as seasonal unemployment or an anniversary of a death.

At risk populations

SAD is uncommon in children and adolescents, with the average onset at about 23 years of age. As is the case with major depressive disorder, SAD appears to affect women more frequently than men, at a ratio of approximately 4 to 1. In addition, and of special interest to northern residents, is the fact that the rate of SAD increases as the distance from the equator increases. Therefore, women ages 20 - 40 living in northern geographic regions are at the highest risk of developing SAD. American statistics reveal that 4% - 6% of the general population experience seasonal depression and the rates vary greatly depending upon latitude. In Florida, the rate is only 1.4%, whereas in Alaska the rate is about 10%, which may be indicative of rates within the Northwest Territories as well.

Etiology

As with any disorder, the exact etiology or cause of SAD is difficult to determine. However, there are several theories, which attempt to shed light on the matter. The most widely accepted of those is the serotonin hypothesis, which suggests that low levels of serotonin in the brain are responsible for initiating the depression.

Another is the melatonin hypothesis, which suggests that high levels of melatonin in the brain are responsible for bringing on the depressive effects. In both theories, lower amounts of sunlight seem to be the practical cause of SAD.

Treatment Options

The primary and most successful treatment for SAD is light therapy or phototherapy. When undergoing bright light therapy, patients keep their eyes open and glance toward the light source as much as possible, but avoid staring directly into it. The beneficial effects of bright light therapy are believed to be mediated through the eyes, as opposed to the skin. The success rate of light therapy is extremely encouraging with 60% - 80% of patients showing significant improvement. Bright light therapy offers several other benefits as well. First, onset of the antidepressant effect is much swifter than with oral antidepressant therapy. Most patients experience an effect within the first 4 to 7 days of therapy. Second, light therapy appears to be well tolerated and side effects are minimal.

For those individuals who cannot access or who do not respond positively to bright light therapy, pharmacotherapy is typically the next treatment option for those suffering from SAD. Also, if a patient is a high suicide risk or if his/her depressive symptoms impair social or occupational functioning, antidepressant medication is necessary. First line antidepressants referred to as SSRIs are the most commonly prescribed medications for individuals with SAD. SSRIs include drugs such as Serzone, Zoloft, and Prozac.

Self diagnosis

Although self monitoring one's own health is certainly encouraged, individuals who suspect that they may suffer from SAD should consult a physician and receive a diagnosis prior to engaging in any form of treatment. Bright light therapy can be hazardous to individuals with certain medical conditions or taking certain medications.



Self Help

Exercise: For SAD sufferers who have the residual energy, exercise can be helpful. However, people with full-blown depression often experience such profound fatigue that exercise is impossible.

Diet: Diet can also be important. A balanced diet consisting of high quantities of fruits, vegetables, and whole grains has been known to be helpful. Simple sugars found in junk food are to be avoided.

Sunlight: Lastly, people with SAD should spend as much time as possible outside, particularly on sunny days.

For more information:

Contact your family doctor or the Mental Health Clinic (873-7042); the Canadian Mental Health Association - NWT Division (873-3190 or 1-800-661-0844); the Independent Clubhouse (Yellowknife 669-9279; NWT 1-877-776-7707); Clark Institute of Psychiatry, Ontario (www.camb.net/CLARKEPages/).

In Brief ... Injury Prevention

Health Canada Secretariat for Injury Prevention and Control

Canada now has a national focal point for injury prevention, with the announcement in late January of a Health Canada Secretariat for Injury Prevention and Control. Working under the health ministry, the secretariat is charged with developing a national framework for injury prevention in Canada. Exactly what that means awaits the outcome of consultations across this vast land. It could at the least include securing improved collaboration among the various branches of Health Canada through which injury work is now fragmented, and among other government departments which play a part in injury prevention, such as transport, agriculture, and justice. Although a budget for national programming is lacking, the secretariat is staffed by three well known practitioners whose experience brings together three elements of injury prevention (surveillance and research, public education, and community action): Francine Archambault, who previously managed national public education programs for the health protection branch of Health Canada; Margaret Herbert, an epidemiologist who managed CHIRPP, Canada's emergency department injury surveillance system; and

Morag Mackay, an injury epidemiologist who also built a community injury prevention program in the Ottawa area. Their goal is to have a national plan ready for the Montreal world conference in 2002.

Snowmobile training to be monitored

Young people who ride snowmobiles or all-terrain vehicles (ATVs) are the target of an injury prevention program in western Manitoba, reports the winter edition of *Manitoba Child Injury Prevention News*. Impact, the injury prevention centre of Children's Hospital, Winnipeg, has joined with the Marquette Regional Health Authority to implement and evaluate a program of safety training for riders over the next 12 months. Research has shown that drowning is a major cause of snowmobile related death, especially during freeze-up and spring thaw. Injuries to young snowmobile and ATV drivers usually involve excessive speed, alcohol, night driving, driver inexperience, or riding on the highway. There is room for improvement in helmet wearing rates. Details of the program can be obtained from im-pact@escape.ca.



Continued on Page 19

Conferences & Workshops

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Circumpolar Housing Forum 2000

The Circumpolar Housing Forum 2000 was held in Yellowknife, September 18-23, 2000. Approximately 250 delegates participated from all over Canada, US and the circumpolar world. Presentations which focused on the links between health and housing were included under Aboriginal/Native Housing Issues. Other presentations focused on Best Practices in Construction, Business Opportunities in the Circumpolar World and Planning for Sustainable Communities.

The guest speaker and workshop presenter was Alan Weisman, radio and print journalist, who has covered environmental and community development issues around the world. He spoke on "Observations from a Globe Traveler", highlighting increased environment-friendly living options and used "Gaviotas: A Village to Reinvent the World", as an example.

Duane Fleming, Environmental Health Officer with the Department of Health & Social

Services presented "Housing as a Health Determinant". A panel presentation on "Northern Housing Adaptations for Persons with Disabilities" involved Cecily Hewitt, Consultant for Rehabilitation, Health & Social Services; Aggie Brockman, Executive Director of the NWT Council for Disabled Persons; Cor Van Dyke, Architectural Technologist, PSA Architects; and Marjorie Sandercock, Occupational Therapist, Stanton Regional Hospital.

Innovative housing ideas included the "Universal Design" which highlighted housing accessibility for persons in all stages of life, the "Straw House" one of which is being planned in Yellowknife, alternative power sources with special focus on the "Hydrogen Power Cell" currently being used by the EcoNOMAD group, and "The Toronto Healthy House", an occupant healthy, energy and resource efficient, environmentally responsible and affordable residential structure.



Emergency Planning in Action

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Health and Social Services hosted a *Pandemic Influenza Contingency Planning Workshop*, October 30 - 31, 2000. Forty-three participants attended including representatives from emergency measures, health care workers, environmental and medical health officers, the coroner, long-term care workers, members of the Department of National Defense, and representatives from the Salvation Army.

Keynote speakers were Dr. Louise Pelletier, Chief of the Division of Respiratory Diseases for Health Canada and Mr. Jan Donais, Assistant Regional Director for Alberta, NWT and Nunavut, Emergency Preparedness Canada. Presenters from Health and Social Services, Municipal and Community Affairs, Stanton Regional Hospital and Yellowknife Health and Social Services Board spoke about various issues surrounding contingency planning such as surveillance, vaccine and anti-virals, communications and emergency preparedness.

Some of the main objectives achieved during the two-day workshop included:

- pandemic influenza awareness and the urgent need to start planning
- defining the roles and responsibilities at the federal, territorial and local levels
- networking with some of the key people involved with planning at territorial, regional and local levels
- taking initial steps at the local level by identifying available resources and determining how to best integrate them into a contingency plan
- reviewing existing emergency preparedness plans

The workshop was useful insofar as it provided an opportunity to begin thinking about contingency planning in the North. The next step involves planning at the regional and local levels and consideration of how to implement an emergency contingency plan.



The Northern Contaminants Program: 10th Annual Results Workshop

The Tenth Annual Results Workshop of the Northern Contaminants Program (NCP) took place from September 26th-28th, 2000, in Calgary, Alberta. Jack MacKinnon and Erica Myles, representatives of the Health Protection Unit, Department of Health and Social Services (DHSS), attended the workshop. Researchers and representatives of Aboriginal organizations and Northern communities presented the results of research and related activities conducted under the NCP during 1999-2000. Topics covered included human health, physical transport, pathways, and fate of contaminants, ecosystem monitoring and effects, international policy initiatives, education/communication initiatives with communities, and traditional knowledge. The NCP funds projects each year under the topics of human health, monitoring the health of arctic peoples and ecosystems and the effectiveness of international controls, international policy, and education and communications.

The DHSS has been involved with the contaminants program since its inception in 1991 and currently has representatives on the NCP Management Committee and NWT Environmental Contaminants Committee. As well, it has conducted research under the NCP, through the territory-wide Maternal and Umbilical Cord Blood Monitoring Program, and Cooperative Risk Management Program.

The NCP was initiated under the Arctic Environmental Strategy in 1991 in response to concerns surrounding the long range transport of atmospheric contaminants to Northern

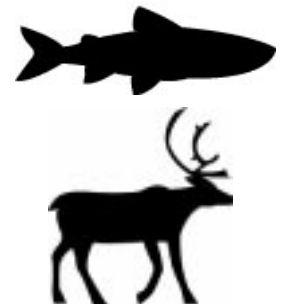
Canada, and the contamination of country foods. The program's key objective is "to reduce and wherever possible eliminate contaminants in traditionally harvested (country) foods while providing information that assists informed decision making by individuals and communities in their food use" (Shearer and Murray, 1997). Government, Aboriginal organizations, scientists and Northern communities work together as partners under the NCP to understand the nature and extent of contaminants present in the Northern ecosystem and to assess their potential impacts on wildlife and people.

The *Synopsis of Research Conducted under the 1999-2000 Northern Contaminants Program* (DIAND, 2000) provides a detailed summary of research, and associated communication and policy activities conducted under the NCP during 1999-2000. There is also a summary of current research projects conducted under the NCP, entitled, *Summary of Northern Contaminants Program: Projects for 2000-2001* (DIAND). For more information on the Annual Results Workshop and for general information on the NCP you can consult their web site at, http://www.inac.gc.ca/npc/index_e.html

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health .online

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Health and the Internet

For anyone interested in finding good health information on the world wide web, it will be necessary to fine-tune search strategies since *health* is a topic which inevitably generates a zillion sites. In 1997 alone, there were over 300 million health-related web sites with an "estimated 37.4 million North American users"¹. However, despite the flood of health information, web users are often left on their own to gauge the quality of health-related sites. The results of a recent study, which evaluated web sites on information regarding fevers in children, were disturbing: less than 10% of sites provided information based on recommendations found in peer-reviewed, published medical literature.² In another study which examined the quality of breast cancer web sites, Hoffman-Goetz and Clarke found that less than a third provided clearly referenced sources, making it nearly impossible for users to verify source and validity of information made available.³



Finding the right stuff

Locating an appropriate web site may prove to be a time-consuming process. Employing a search engine, such as YAHOO! Canada, Metacrawler, MSN Canada, Altavista, or Excite will cut down on the time spent endlessly searching the web. Essentially, a search engine is a web site that is dedicated to helping users retrieve information on the web.

When using most (if not all) search engines the following tips may be used to narrow your search:

- **"Quotation marks":** by using quotation marks you are telling the search engine to only list sites that contain those words in the exact order indicated.

- **Plus and minus signs:** a plus sign (+) directly in front of a word indicates that the word or phrase must appear in the search results (for example, TB +treatment). Likewise, a minus sign (-) means that the word or phrase should not be included in the search results (cancer - breast).
- **Title search:** restricts searches to the title portion of web pages. For example, *title:HIV or t:HIV* will retrieve all documents that have the word HIV in the title.
- **Boolean operators:** characters must appear in small caps with a space on each side.
 - AND - like the plus sign, AND indicates that the documents found must contain all the words joined by the AND operator.
 - OR - documents found must contain at least one of the words joined by OR.
 - AND NOT - like the minus sign, AND NOT indicates that the documents found cannot contain the word that follows the term AND NOT.
 - Parenthesis - are used to group portions of Boolean queries together for more complicated searches. For example, to find documents that contain the word STD and either the word herpes or the word chlamydia, enter STD AND (herpes OR chlamydia).
- **lower case letters:** retrieves both the capitalized word and the lower case. The same is not true if reversed. Entering "hepatitis" will retrieve items listed under both Hepatitis and HEPATITIS. The latter entry would miss lower case references.

¹ Wooton, J. C. "The quality of information on women's health on the internet", *Journal of Women's Health*, 1997; 6: 575-81.

² Impicciatore, P., et al. "Reliability of health information for the public on the world wide web: Systematic survey of advice on managing fever in children at home." *BMJ* 1997; 314: 1875-81.

³ Hoffman-Goetz, L. and J. N. Clarke. "Quality of Breast Cancer Sites on the World Wide Web", *Canadian Journal of Public Health*, 91/4, 2000: 281-284.

Evaluating a web site

Once a web site has been identified, users will need to be able to assess its reliability. The following are indicators of web site accountability which will help users make an informed decision on the quality of information available.⁴

Site disclosure: What are the credentials of the web site owner? Are financial charges clearly specified?

Site ownership: Who operates the web site (public/private/advocacy group, etc.)?

Site currency: How often is information updated?

Source attribution: Are appropriate references to web content provided?

User interactivity: Do users have an opportunity to provide feedback? Does the web site provide links to other sites?

User privacy protection: Is information secure on this web site? If not, does the site provide a disclaimer?

Type of site: What kind of information will the web site provide? Is it a news, support group or chatroom forum? Is the web site public, private, commercial or personal?

Clearly, users need to not only develop effective strategies to locate information on the web, but also be able to rely on equally effective methods to evaluate web site quality and reliability. Misinformation is always a matter of concern, but this problem requires special attention given the potential the internet holds in terms of its impact on health care delivery.

⁴ Silberg, W.M. *et al.* "Assessing, controlling, and assuring the quality of medical information on the Internet." *JAMA*, 1997;277: 1244-45.

In Brief ... continued

Canadian injury research agenda

A further gear has been added to power Canada's injury prevention efforts. A cross country group of researchers has been funded by the Medical Research Council to develop a national agenda for injury research in Canada. The hope for this major initiative is that it will fuel productive injury research by encouraging cross pollination in this multidisciplinary field, by attracting more young scientists to work in injury prevention, and by linking with the public policy and community program sectors to get research turned into action. Currently injury in Canada receives 1% of national research funds, despite accounting for 11% of the economic burden of illness. The working group plans to learn from the Americans and Australians, who have been through similar national strategic efforts.

Impulsive children have more injuries

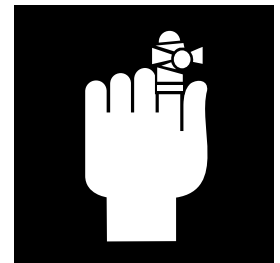
A news release from the Center For The Advancement of Health describes a study in which 59 children were evaluated at ages 33 months, 46 months, and again at age 6 years. A standard battery of tests assessed inhibitory control and extraversion. At 6 those who scored high on the latter and low on the former overestimated their physical abilities and experienced more injuries requiring medical attention. The conclusion is that injury prevention programs should target these children, but fails to suggest what should be done. The study reinforces the findings from several older reports pointing to much the same traits as risk factors.

Cooler Canada

Turning down domestic hot water heaters to 49°C has long been advocated as a primary means of preventing tap water scalds, particularly among vulnerable elderly and infant populations. Public education campaigns on this strategy, however, have had limited success. Ensuring that hot water tanks are pre-set to safer temperatures before they leave the factory holds more promise by eliminating the problem at its source. Currently in Canada, hot water heaters are typically pre-set at temperatures guaranteed to scald the very young and the very old within seconds of delivery at the tap. But a change to the National Plumbing Code, which would require safer pre-set temperatures, has so far eluded Canadian activists.

Now two initiatives are underway aimed at changing national policy. As part of a campaign called "Hot Water Burns Like Fire", Safe Start (the injury prevention program of British Columbia's Children's Hospital) has secured the support of the provincial government in lobbying for changes to the national plumbing code. At the same time, a coalition of national organizations is working towards the same goal. Led by SafeKids Canada, this effort also includes the Canadian Institute for Child Health, Smart-risk, and Safe Start. For more on the "Hot Water Burns Like Fire" campaign, contact Safe Start at: www.childhosp.bc.ca/Children's/safestart.

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Notifiable Diseases by Territory and Region: for the Northwest Territories (NWT) and Nunavut (NU) July 2000 - September 2000*

	July - September 2000		Cumulative Totals - 2000		Regional Cumulative Total - 2000						
	NWT	NU	NWT	NU	Inuvik	Fort Smith	Baffin	Keewatin	Kitikmeot		
<i>Vaccine Preventable Diseases</i>	Haemophilus Influenzae	0	0	0	1	0	0	0	0	1	
	Hepatitis B	0	0	1	0	0	1	0	0	0	
	Influenzae	0	0	1	152	0	1	1	150	0	
	Pertussis	4	0	7	0	5	2	0	0	0	
<i>Sexually Transmitted/ Bloodborne Diseases</i>	Chlamydia	110	148	365	527	138	227	246	210	71	
	Gonorrhea	28	22	104	72	37	67	48	20	4	
	Hepatitis C	10	3	30	6	7	23	2	3	1	
	Hepatitis, Other	0	0	0	0	0	0	0	0	0	
	Syphilis	0	0	0	0	0	0	0	0	0	
<i>Diseases by Direct Contact/ Respiratory Route</i>	Chicken Pox	89	10	116	134	39	77	18	8	108	
	Group A Strep	0	0	0	1	0	0	0	0	1	
	Invasive Strep Pneumoniae	3	5	6	15	0	6	7	5	3	
	Legionellosis	0	0	0	0	0	0	0	0	0	
	Meningitis, Pneumococcal	0	0	0	0	0	0	0	0	0	
	Meningitis, Other Bacterial	0	2	0	2	0	0	0	0	2	
	Meningitis, Unspecified	0	1	1	1	0	1	0	0	1	
	Meningitis, Viral	0	0	0	0	0	0	0	0	0	
	Meningococcal Infections	0	0	0	0	0	0	0	0	0	
	Respiratory Syncytial Virus	4	6	7	99	2	5	22	57	20	
	Tuberculosis	3	13	9	39	1	8	23	16	0	
	Botulism	0	0	1	0	1	0	0	0	0	
	<i>Enteric, Food and Waterborne Diseases</i>	Campylobacteriosis	5	0	9	0	1	8	0	0	0
		Cryptosporidiosis	0	0	0	0	0	0	0	0	0
E.Coli O157:H7		2	23	6	37	1	5	23	11	3	
Food Poisoning		0	0	0	0	0	0	0	0	0	
Giardiasis		7	4	11	6	2	9	4	2	0	
Hepatitis A		0	0	0	0	0	0	0	0	0	
Salmonellosis		2	7	3	16	0	3	7	7	2	
Shigellosis		0	0	0	0	0	0	0	0	0	
Tapeworm Infestation		0	2	0	2	0	0	2	0	0	
Trichinosis		0	0	0	0	0	0	0	0	0	
Yersinia		0	0	0	1	0	0	1	0	0	
<i>Vectorborne/ Other Zoonotic Diseases</i>		Brucellosis	0	0	0	1	0	0	0	1	0
	Malaria	0	0	0	0	0	0	0	0	0	
	Rabies Exposure	1	1	2	2	2	0	1	1	0	
<i>Antibiotic resistant microorganisms</i>	Methicillin-resistant Staph.Aureus	1	2	6	3	2	4	3	0	0	
	Vancomycin-resistant Enterococci	0	0	1	0	0	1	0	0	0	

HIV Infections Reported in NWT Residents

	1987	88	89	90	91	92	93	94	95	96	97	98	99(YTD)
NWT	2	1	1	2	1	8	0	2	0	2	0	1	1
Nunavut	0	1	2	1	2	1	3	0	0	0	1	0	0

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