



UNIVERSITY OF THE ARCTIC

## Module 8

### Health and Health Care

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#### Key Terms and Concepts

- health—definitions, models, pathways
- measuring health status in populations
- health indicators
- structure of populations
- health transition
- health determinants

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#### Learning Objectives

This module is designed to provide you with an understanding of the core issues on the health status, health determinants, and health care of Circumpolar populations, with an emphasis on Indigenous peoples. Because of their presence in four countries, the Eskimo-Inuit will be used as a case study. The key concepts, however, can be applied to other populations of more direct personal interest.

Students in this course have a variety of academic and occupational backgrounds. It is not possible to cater to all the different personal objectives and career goals of the students. As this is an undergraduate course, there is no presumption of any prior training in any of the health disciplines. However, use of medical terminology is unavoidable, although every effort will be made to incorporate some of these terms [marked in **boldface**] in the Glossary.

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#### Module Readings

Read the Overview and Lecture for Module 8, then read the assigned readings from the *Reading File* given below.

Reading 23: Robert Fortune, “The Health of the Eskimos as Portrayed in the Earliest Written Accounts”

Reading 24: Otto Schaefer, “Medical Observations and Problems in the Canadian Arctic”



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Reading 25: Peter Bjerregaard and T. Kue Young, "Major Themes in Inuit Health"

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### Overview

The health of the Inuit and other Indigenous peoples of the Circumpolar North has undergone substantial changes over the past five centuries, as a result of the changes brought about by interactions with Europeans. This process accelerated considerably in the second half of the twentieth century, with important consequences for health. It is important to place health in the context of the geographical, historical, and cultural background of the population. Because the Inuit "live under four flags," this module will take the comparative approach wherever possible.

Significant changes in the health of the Inuit and other Indigenous peoples include:

1. the decline but persistence of infectious diseases such as tuberculosis, stabilizing at a level still higher than that of the non-indigenous national population;
2. the emergence of chronic diseases such as heart disease;
3. the overwhelming importance of the social pathologies, including injuries, violence, suicide, and substance abuse.

The changing pattern of health, often referred to as the health transition, reflects the interaction of genetic and environmental factors. Among the latter are the generally lower socio-economic status, higher prevalence of certain health risk behaviours, and lower utilization of preventive services.

Health services have evolved in the Circumpolar region largely as a result of the deteriorating health status of the indigenous population. Modern, Western medical care has largely supplanted, but not eliminated, the traditional indigenous healing systems.

### Lecture

#### Understanding Health and Health Care

In discussing the health of Circumpolar peoples, there is a tendency to equate health care, or health services, with health. It is the objective of this first lecture to make the distinction. You will find that the number of doctors and hospitals in a region is only one factor, and probably not even an important one, in determining whether the population is "healthy" or not. In order to do that, it is necessary first to define what "health" is and understand how to measure it in a population. How is "health" produced? What are its components and determinants? How are these factors



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interconnected? These issues are not unique or specific to Circumpolar peoples, but are relevant to any discussion of population health.

### Defining and Measuring Health

There are many attempts to define health. A much quoted definition is the one contained in the preamble to the Constitution of the World Health Organization of 1946, which states that, “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (World Health Organization 1946). In 1999, the World Health Assembly added “spiritual well-being” to the health definition of WHO.

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At the time, it was a revolutionary concept because it is comprehensive and emphasizes the broader, positive, and psychosocial aspects of health, which go beyond the traditional, biomedical focus on the negative aspects such as death, disease, and disability. In the last half century, there have been many refinements and alternative definitions. René Dubos, a well-known microbiologist and writer, reminds us in his book *Man, Medicine, and Environment* that:

... health and vigor can be achieved in the absence of modern sanitation and without the help of western medicine. Man has in his nature the potentiality to reach a high level of physical and mental well-being without nutritional abundance or physical comfort. (1968: 69)

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This observation is particularly appropriate in our discussion of health in the Circumpolar regions.

The health status of a population can be measured by indicators, which are usually rates of the frequency of occurrence of specific health events, conditions, or attributes. Rates are computed by dividing cases or events by the population to make populations of different sizes comparable.

Incidence refers to the development of new cases of disease or health events, for example the number of new cases of tuberculosis (or motor-vehicle accidents, suicides, etc.) per 1000 people in the population per year. It measures change (from healthy to sick, from alive to dead). Prevalence refers to the frequency of existing cases or health events at any one time, for example the number of people with stroke (or diabetes, depression, etc.) per 1000 people in the population. This distinction is very important. Think of a bathtub: the tap adds water (incidence), the drain lets out water (people dying, moving away, or being cured) and, at any one time, there is a certain amount of water in the tub (prevalence).

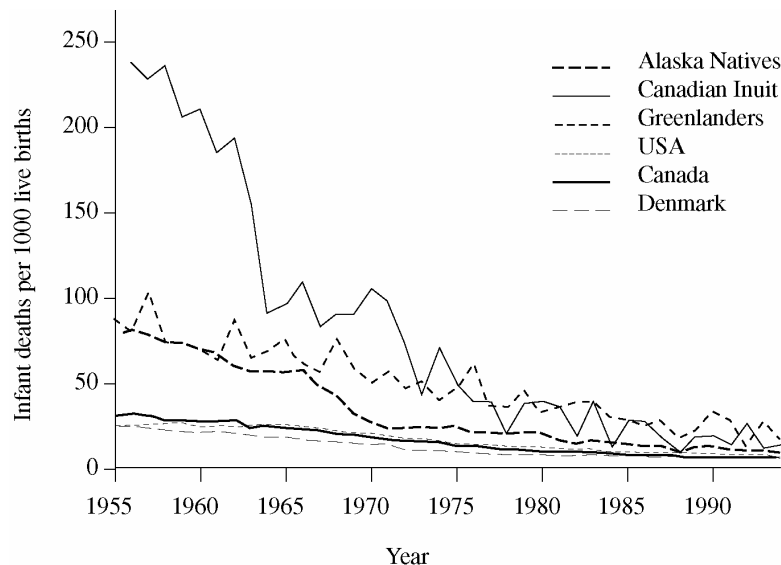
The health of a population can be represented as a pyramid or iceberg. On the very top, representing the most severe consequences of ill health, is mortality. As most sicknesses do not result in death, next down is morbidity, which may be gauged by the rate of people being admitted to hospitals and



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by their reasons for seeking treatment, or the rate (and reasons) of consultations with physicians or visits to a health centres. Minor illnesses and other conditions which do not result in any contact with the health care system can only be counted by health interview and examination surveys conducted in samples of the population. Health surveys are also useful in measuring health behaviours (e.g., smoking, exercise), practices (e.g., blood pressure check-ups), knowledge (“too much cholesterol causes heart disease”), attitudes (“real men don’t wear condoms”), and beliefs (“white man’s foods are bad for my health”) among the population.

A health indicator which is used often in international comparison is the infant mortality rate (IMR), which is the number of infant deaths per 1000 live births. An infant is defined as a child under one year of age. Another indicator is the life expectancy at birth, which summarizes the likelihood of survival of a newborn child over his or her lifetime. We shall come across these indicators later on. Note that they both refer to deaths. Deaths are a lot easier to define, count and record than health! Figure 1 shows the substantial decline in IMR among Inuit in all three countries during the second half of the twentieth century.



**Figure 1:** Trend in infant mortality rate: Greenlanders, Northwest Territories Inuit and Alaska Natives compared to Denmark, Canada, and the United States

## Models and Pathways of Health

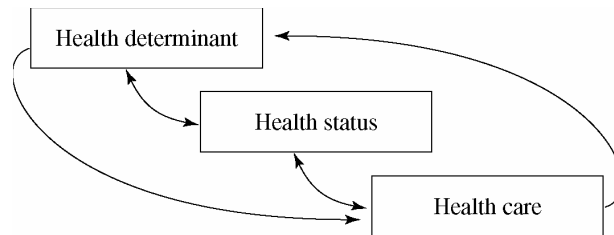
It is important to distinguish between health status, health determinants, and health care. Health status refers to the state of health of a population, its pattern and distribution of diseases and health conditions. A health determinant is any factor that increases the probability that a change in



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health condition will occur. For example, smoking is a health determinant; it promotes the development of lung cancer, thus affecting the health status of the population. The services that are mounted to detect and treat lung cancer constitute health care.

Although there are many complicated models showing how health determinants, health status, and health care are interrelated, a simple one is shown here in Figure 2.



**Figure 2:** A simple model of health

You can use this simple model to understand the evolution of health among Indigenous peoples in the Circumpolar North. The arrival of Europeans (as explorers, traders, missionaries, settlers) and the immense social changes that “contact” brought about can be considered a health determinant. The resulting epidemics of acute infectious diseases (such as smallpox, measles, tuberculosis, etc.) describe the declining health status of such populations. In response, the national or colonial governments introduced specific health care measures to combat these epidemics, resulting in improvement in health status.

## Impact of Health Care on Health Status

The health of most populations in the world have improved, especially during the twentieth century. Because this is also a period where major medical advances have occurred—effective drugs, surgical procedures, sophisticated technologies—it is often assumed that it is such advances that caused the improvement in health status. The British demographer Thomas McKeown analyzed the decline in mortality rates from several infectious diseases in England since the seventeenth century and attributed the substantial decline primarily to an improvement in nutritional status and standard of living (examples of health determinants) rather than medical interventions, as the decline generally preceded the introduction of such innovations as antibiotics and vaccines. This view is hotly debated. This is not to say that health care is not important—but its importance lies mainly in improving the quality of life.

In examining the changing health status of Circumpolar peoples, you should ask yourself:



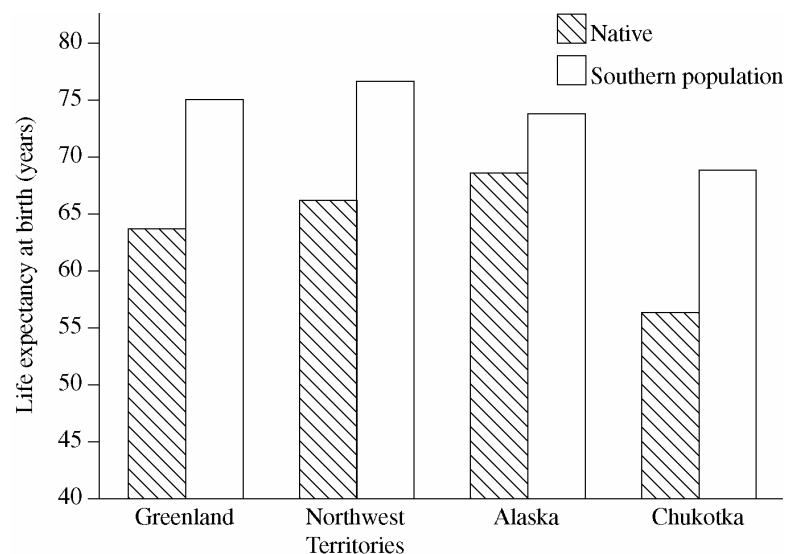
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- Is the poor health status of the people the result of inadequate health care?
- Would more health care services (doctors, hospitals, drugs, etc.) improve the health of the people?

### Patterns of Health and Disease

In the past 50 years, there have been major qualitative and quantitative changes in the health status of the Inuit and other Circumpolar Indigenous peoples. The absolute burden of mortality and morbidity has decreased substantially, measurable in terms of life expectancy at birth, infant mortality rate, and the mortality and incidence rate of most infectious diseases. However, the relative contributions of various diseases and health conditions have also changed, a shift that has been called a health transition, which is shared by many other populations undergoing rapid sociocultural change. The key features of this shift are:

4. the precipitous decline in infectious diseases (such as tuberculosis), which has stabilized at a level that remains higher than in the general, national population;
5. there is a corresponding increase in the chronic diseases such as heart disease, hypertension, obesity, diabetes, and stroke; but
6. by far the most important group of health problems is the so-called social pathologies: violence, accidents, suicide, and alcohol and substance abuse.



**Figure 3:** Life expectancy at birth: comparing Circumpolar Indigenous populations with southern (national) populations



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## **Infectious Diseases**

It is unlikely that Indigenous people ever lived a disease-free existence prior to the arrival of Europeans. What is certain is that the small, scattered populations meant that many acute, infectious diseases were not able to be sustained, such that by the time the newcomers arrived, there was very little resistance or immunity in the Indigenous population. This is sometimes referred to as the virgin soil theory. Diseases such as smallpox, measles, influenza, whooping cough, and intestinal infections attacked the Indigenous communities, often with devastating consequences. Epidemics often resulted in depopulation, sometimes the wholesale disappearance of clans and tribes; it spurred migration, often aggravating the spread of disease; and it disrupted the political leadership and traditional belief systems. As late as the 1940s and 1950s, such virgin-soil epidemics still occurred, for example, in the Yukon with the construction of the Alaska Highway by the U.S. military during the Second World War, and the polio epidemic in the central Canadian Arctic, which spread from workers stationed in Churchill, Manitoba.

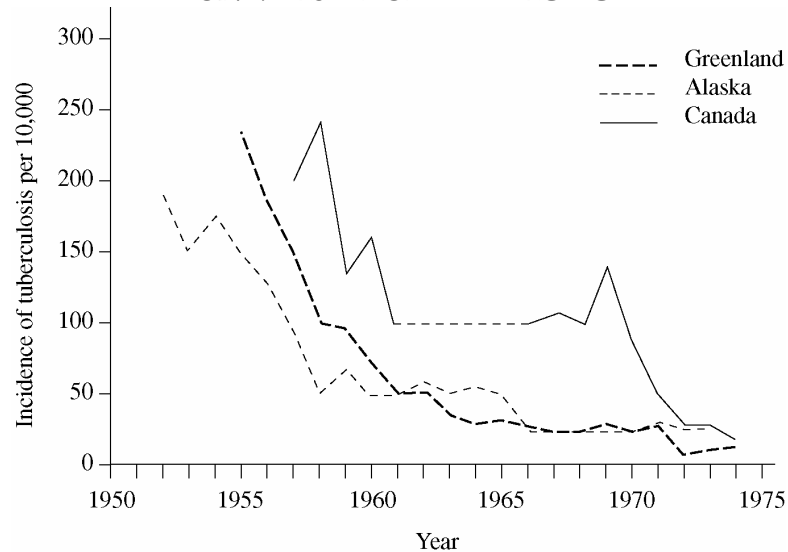
The rise and fall of tuberculosis (TB) serves as an excellent example of the model of health (Fig. 4). During the nineteenth and twentieth centuries, TB was one of the most important diseases and causes of death among the Inuit and other Indigenous peoples. It reached crisis proportions during the 1950s. It also triggered a government response to combat the disease, which included x-ray surveys, evacuation to southern sanatoria, trials of preventive therapy with isoniazid and BCG vaccines, and general improvement of health services and community infrastructure. These campaigns have been largely successful, as Figure 4 shows, although the coercive manner in which they were conducted had been the subject of much criticism, especially the forced evacuations of patients that often resulted in years and decades of separation from family and community.

Today, TB is largely under control, although sporadic outbreaks still occur from time to time. Other infectious diseases which are still important include pneumonia, meningitis, hepatitis, and sexually transmitted diseases.

Some diseases appear to be peculiar to the Arctic ecology and cultural practices of the Indigenous populations. For example, botulism, which is caused by ingestion of a toxin produced by bacteria that grow in traditionally prepared fermented meats, occurs periodically, sometimes with fatal results. There are also parasites, which are normally found in animals, that can be ingested by humans, especially those who still consume game meats obtained from hunting.



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**Figure 4:** Decline in the incidence of tuberculosis among Alaska Natives, Canadian Inuit, and Greenlanders

## Chronic Diseases

The chronic diseases are usually considered distinct from the infectious diseases, which are caused by specific microorganisms and tend to be transmitted from person to person and thrive in conditions of overcrowding, poor sanitation, and inadequate nutrition. The chronic diseases constitute a large group of diseases with multiple risk factors. They affect different body organs, are characterized by insidious onset, slow progression, long duration, and they are not caused by microorganisms. They are mainly diseases of older adults, although early stages may well begin in childhood. Within this group, several diseases, such as cancer, ischemic heart disease, stroke, diabetes, obesity, and hypertension, have been called “diseases of modernization” or “Western diseases” because they tend to increase in traditional societies (such as Circumpolar Indigenous peoples) that are undergoing rapid social changes, which may include changes in diet, reduction in physical activity, and exposure to new environmental hazards.

Cancer has been studied extensively among the Inuit, and there was an international circumpolar study group during the 1980s and 1990s which standardized data collection and contributed significantly to our understanding of the unique cancer patterns among Inuit and the likely causes.

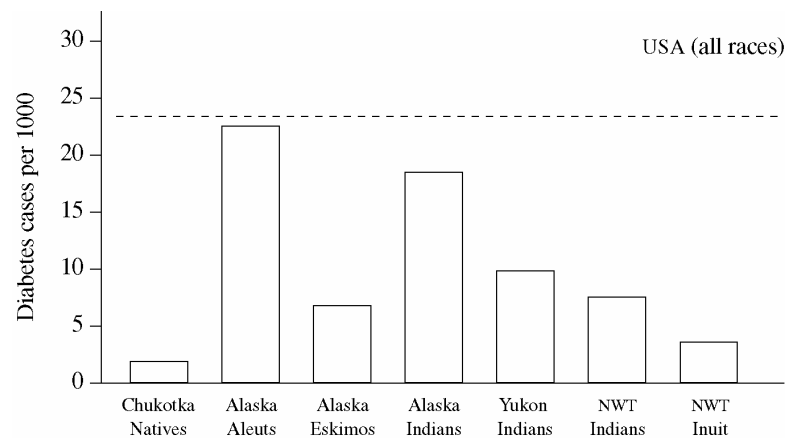
Cancer is not a single disease, but a collection of diseases affecting different organs, with different risk factors, and different likelihoods of survival. They have the common characteristic of causing cells to multiply abnormally and uncontrollably. The Inuit have among the world’s highest



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rates of several cancers that are very rare in most other populations: cancers of the nasopharynx, the salivary glands, and the esophagus. However, these “traditional” cancers have been on the decline, while the “modern” cancers, such as cancers of the lung, breast, colon, and cervix, which are common in most industrialized societies, are on the rise.

Diabetes is likely also a new disease, one with which the Inuit, at the moment, are still less affected, compared to, say, North American Indians. A circumpolar survey in the late 1980s showed substantial variation in the prevalence of diabetes among the various groups, although all were below the average for the United States (Fig. 5). Even among the Dene (Athapaskan Indians), the rates are lower than those for more southerly Indian groups.



**Figure 5:** Prevalence of diabetes among Circumpolar Indigenous peoples

Ischemic heart disease (IHD) occurs when there is insufficient blood going to the muscles of the heart due to a blockage in the coronary arteries (the arteries supplying oxygenated blood to the heart itself). The result is what is commonly called a “heart attack,” which is often fatal. The risk factors of IHD include smoking, physical inactivity, high cholesterol levels in the blood, a fatty diet, diabetes, hypertension, and obesity. It is generally recognized that the Inuit have, in the past, been less affected by IHD because a substantial portion of their diet, obtained from marine mammals, is rich in polyunsaturated fatty acids, especially omega-3 fatty acid.

## Injuries and the Social Pathologies

Among the most serious health problems affecting Circumpolar Indigenous peoples in the last half of the twentieth century are injuries. In the younger age groups, injuries are by far the most important causes of death and, overall, they may account for as much as a third of all deaths. Injuries can be broadly classified as “intentional” (which may be interpersonal or self-



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inflicted) or “unintentional” (i.e., accidents). Injuries resulting from attempted suicides, suicides, and violence are classified as intentional injuries.

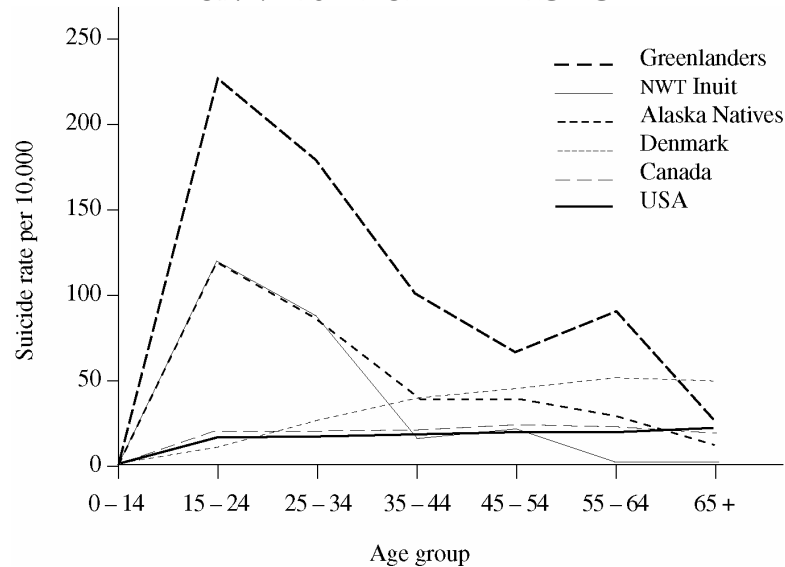
While accidents have always been a hazard of the hostile natural environment experienced by Circumpolar peoples, more recent sociocultural changes, and the general availability of alcohol, have changed the pattern and extent of injuries. Traditionally, Arctic hunters were at risk from hunting accidents (e.g., animal attacks and shooting and boating accidents) and death or injury from exposure or hypothermia. With modernization, motor vehicle accidents and house fires have assumed increasing importance. Studies that have looked into the contributing factors behind these accidents have usually found alcohol use to be involved to some degree.

Interpersonal violence in all its forms (homicides, assaults, abuse), with or without sexual context, directed at strangers or family members, is now an issue of major public health concern in most Circumpolar Indigenous communities. There are different explanations, some focusing on the stress of rapid social change and the inadequacy of traditional conflict resolution behaviours in the new, more urbanized environments. Sexual abuse of children is particularly pernicious, and is probably underreported universally. The consequences of child sexual abuse in later adult life have been documented in health and social surveys, and include a variety of physical and psychosocial ailments.

While suicides were not common among the Inuit before the 1950s, it was not unknown. Traditionally, suicide was practised mainly by the elderly and the infirm. This pattern is in sharp contrast to the now prevalent pattern of adolescent suicide, which often occurs in epidemics. This is not particular to the Inuit, as a similar development has taken place in many other aboriginal communities in North America and elsewhere. While suicide rates tend to increase with age in the mainstream populations, in Indigenous populations, the peak rates occur at age 15 to 24 years, with males outnumbering females (Fig. 6). For every completed suicide, there are several suicide attempts, and perhaps an even broader pool of individuals who have entertained suicidal thoughts. Many causes or risk factors of suicide have been postulated, and these can be sought at the individual, family, and community levels, from mental illness, such as depression, to peer pressure, to social disintegration resulting from historical injustice. Unfortunately, there appears to be no simple answer, nor are intervention and prevention programs that have been attempted been successful in stemming this emerging health problem.



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**Figure 6:** Age-specific suicide rates in Alaska Natives, Canadian Inuit, and Greenlanders, compared to national populations

## Health in the Life Cycle

Different stages of the human life cycle are associated with unique health problems. There are also gender differences, with women in the childbearing years having unique health aspects. With increasing life expectancy, the proportion of the population who are elderly has increased steadily, creating its own health care and social service needs.

## Pregnancy and Childbirth

Inuit and other Circumpolar Indigenous women tend to be young at their first pregnancy, usually some five years younger, on the average, than their southern counterparts. Deliveries now take place in regional hospitals, often far away from the home communities. While there has been steady improvement in survival during the newborn period, this comes at a price in the social stress created by long periods of separation from the women's families. Fewer and fewer women now possess the skills to act as the traditional birth attendants who served Inuit women for centuries before modern medical care.

Health professionals strongly discourage smoking and alcohol drinking during pregnancy, but it is unknown to what extent Inuit women follow this advice. Smoking in the general population, however, is extremely high, at the 80 per cent level. The benefits of breastfeeding are now well documented. The prevalence of breastfeeding has probably decreased



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among the Inuit with the advent of milk substitutes, but since the 1970s, there has been a resurgence.

The rates of unwanted pregnancies and induced abortions are exceptionally high in Greenland. The latest figures for 2000 and 2001 show that the ratio of abortions to live births is about 1:1.

### **Infants, Children, and Adolescents**

Inuit children under 15 years of age constitute about 30 to 40 per cent of the total population. This is typical of a developing society with a high birth rate. Such population **age-structure** poses severe demands on the health, education, social, and economic sectors. In many countries, low-birth-weight babies (i.e., < 2,500 grams) are common in the lower socio-economic groups. This is generally not the case among the Inuit. Several studies have monitored the growth of Inuit children, and there has been an increase in height over time. Inuit children, however, are increasingly adopting the sedentary lifestyle associated with attending school, television watching at home, and reduction (or elimination) of the custom of accompanying their parents on hunting trips.

The most important health problems of children are injuries and infections, especially infections of the lungs (pneumonia), brain linings (meningitis), and bowels (gastroenteritis). While they do not result in deaths, **dental caries** is rampant across the Arctic, largely the result of the widespread use of sugar snacks. In the Canadian Arctic, an innovative program trains and provides dental therapists to provide primary dental care at the community level.

### **Adults**

The health needs of adults, with the exception of reproductive health of women, are not always addressed adequately. Chronic diseases such as obesity, heart disease, diabetes, hypertension, and stroke are new emerging problems for Inuit adults. Adult women also have unique health problems that are not related to pregnancy and childbirth. Women are at risk for cancer of the breast and the genital organs, nutritional deficiencies (such as anemia), and violence, including sexual abuse and family violence. Post-menopausal women are at increased risk of heart disease, osteoporosis, and arthritis.

### **The Elderly**

As a population, Circumpolar Indigenous peoples are considered “young.” The proportion of the population which is over the age of 65—the common definition of “elderly” is relatively low, around three to five per cent. The



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types of health problems of the elderly are comparable to those of younger adults, but with a stronger likelihood of suffering the long-term, often disabling effects of chronic diseases. The elderly are also at high risk for certain injuries, especially accidental falls, and some infections, especially pneumonia. Many are restricted in their daily activities and require assistance. While the elderly are traditionally cared for at home, the demand for institutional care has become an emerging issue.

Many Inuit elders experience a sense of loss and grief over the erosion of cultural values, the decline of families, and the devastating effects of youth suicide epidemics. They also experience loss of respect and reduced meaningfulness of social roles.

## Determinants of Health

How did the observed pattern of health and disease among Circumpolar Indigenous populations come about? Some health determinants relate to human biology, such as genetics, some to individual lifestyles and health practices, still others to socio-economic status, community infrastructure, and environmental quality.

## Genetics and Human Biology

Diseases ultimately originate from structural and functional disorders in the body at the molecular, cellular, tissue, organ, and organism levels, which are biological in nature. Human biology in the Arctic has been concerned with genetic contributions to disease and physiological adaptations to the cold climate. Until recently, the Inuit and other Indigenous peoples could be considered both geographically and genetically isolated. Their long habitation in the Arctic has also resulted in the evolution of many genetic (and cultural) adaptations.

Although there are diseases caused by single genes, the most important role genetics plays in health is in the multifactorial diseases; diseases such as diabetes, heart disease and cancer, which have both genetic and non-genetic causes. Several genes may act together to increase the susceptibility of an individual to disease, while environmental factors ultimately trigger the onset. Much research in recent years has uncovered genetic markers of various diseases.

## Physical Environment

The Arctic is often assumed to be a pristine, unpolluted area. While there are few industries, there are mining activities, especially in Alaska, Canada, and Russia, that may have a serious effect on the immediate environment. In the Russian Arctic, large-scale industrialization powered by coal has resulted in substantial, often visible, pollution (Fig. 7). Traditional foods are invisibly



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contaminated with man-made chemicals, such as polychlorinated biphenyls (PCBs), dioxins, toxaphenes, and other pesticides that are transported to the Arctic by ocean and atmospheric currents, biomagnified in the marine food web, and ultimately end up in humans.



**Figure 7:** Environmental pollution in Chukotka, Russia

The mere presence of environmental contamination does not constitute a health risk. Many health effects are subtle and difficult to detect. Often, benefits and harm need to be carefully considered. The presence of contaminants in breast milk, or traditional marine foods, needs to be weighed against the health-promoting and disease-preventing benefits of such diets. International experts in environmental science associated with the Arctic Monitoring and Assessment Program (AMAP) have recommended continued high consumption of traditional foods. It is possible to reduce the intake of contaminants without affecting the intake of nutrients by substituting the most polluted food items with other traditional food items.

“Old” environmental health problems, those related to housing, water supply, and sanitation, have not all been solved. Houses in the Arctic are often small and crowded, and, in many, the indoor climate is damp and



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heavily polluted with tobacco smoke. Sanitation and waste management is not well developed in the villages.

### Personal Lifestyles and Behaviours

Individual behaviours, such as smoking, diet and nutrition, alcohol and drug use, sexual practices, and physical activity, are all implicated in diverse health problems. Existing data are discouraging in that, as a group, Indigenous people have acquired an unfavourable health risk profile compared to other populations (more smoking, more obesity, less physical activity, etc.). It seems that Indigenous people have adopted the worst practices of modern society, and not always taken advantages of its beneficial aspects.



**Figure 8:** Canadian Inuit woman cutting meat with an ulu, in a modern home with a refrigerator

Knowing about health risks is a long way from actually changing one's behaviour accordingly. While they are ultimately individual decisions, lifestyle choices are heavily influenced by social and political environments. Health education, while important, is not sufficient by itself. Often, environmental modifications through health regulations (e.g., restricting smoking in public places), economic incentives (e.g., subsidies for nutritious foods), and infrastructure improvement (e.g., provision of recreational facilities for young people, etc.) are also needed.



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### **Socioeconomic and Cultural Factors**

Broader socio-economic and environmental factors, such as income, education, housing, and employment, affect health status through a variety of pathways. Thus, overcrowding promotes the acquisition and transmission of respiratory and skin infections; low income and education influence food choices, nutritional status, and the development of chronic diseases; and unemployment engenders family breakdown and increases the risk of alcohol abuse and family violence. By almost any indicator—educational attainments, individual and family income, housing quality, employment and occupation—and any composite index combining some or all of these, Indigenous people fare worse, although improvements have been made.

Among traditional cultures, there are many examples of how cultural beliefs and practices expose people to, or protect them from, diseases and injuries. We have already mentioned, for example, that marine mammals contain a high level of the beneficial omega-3 fatty acids. Yet, the traditional method of partial fermentation, on the other hand, often leads to botulism.

Arctic Indigenous people are undergoing profound social and cultural change. Health is affected when there is discrepancy between modern and traditional values. Traditional cultures coming into contact with a modern cosmopolitan culture may produce acculturation stress. Individuals and communities may develop coping strategies that build on their cultural repertoire. However, these stresses may be so strong and unfamiliar that the protection provided by traditional culture may be dissipated.

## **Culture, Politics, and Health Care**

### **Traditional Medicine**

What did Indigenous peoples in the Arctic do before there were physicians and hospitals? People lived and died without any contact with modern medicine, but they tackled illnesses and cared for the sick. There were indigenous medical systems, each with its theories of disease causation, its practitioners, and its diagnostic and therapeutic techniques. Medicine was integrated with other aspects of the culture and was indistinguishable from religion. While the forms in which traditional medicine was practised was interesting, it is the place of medicine in society that is of critical concern. Erwin Ackernecht, a noted medical historian and anthropologist, wrote: “What counts are not the forms, but the place medicine occupies in the life of a tribe or people, the spirit which pervades its practice, the way in which it merges with other traits from different fields of experience” (1942).

Across the Arctic, the main treatment methods of the Indigenous people prior to colonization were shamanistic. Indeed the very term shaman originates from the Tungu, one of the northeastern Asian Indigenous peoples. The Inuit shaman is called angakkoq, an interlocutor between the



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worlds of the living and dead, and between human beings, animals, inanimate objects, and spirits. Compared to cultures in the forested regions, the stock of herbal medicines was limited, although Labrador tea, roseroot, and other herbs were used both externally and internally for a variety of ailments.

Non-indigenous powers, be they the Christian churches, Soviet ideology, colonial governments, or the biomedical establishment, tended to regard Indigenous medical systems as hocus-pocus, witchcraft, unscientific or, at best, placebo therapy. There was active suppression during the centuries after contact. Yet these systems did not disappear, despite undermining by forces from the larger dominant societies. There are now signs of their resurgence, and instances of collaboration between traditional healers and modern medical institutions and practitioners, particularly in mental health care, can be found.

## Organization of Health Services

Each Circumpolar country has a different history and tradition of delivering health care services. All started with small efforts by missionaries, traders, and early government officials. All experienced exponential growth in the post-Second World War years, with vast investment in infrastructure. Today, they all share certain common features. They have to serve widely scattered, remotely located populations in small villages and towns. There is a strong reliance on transportation and telecommunication. The system is “tiered,” with different facilities and providers of increasing sophistication located further and further from the communities. There is a reliance, on one hand, on imported, non-Indigenous health professionals who tend to stay for short periods of time and generally do not speak the local language; and, on the other hand, on locally recruited primary care providers with expanded duties (a prime example being the health aides in Alaska). The systems are expensive, and per-capita health expenditures tend to exceed the national average. Overall, there is administrative integration of curative and preventive services, an advantage that generally does not exist in the various national health-care systems.

## Politics of Health Care

Major political changes have occurred in the Circumpolar World, with important implications for the delivery of health care. There is a general recognition of the need for self-determination for the Indigenous peoples, although the form and shape that this has taken is different in each country.

In Canada, beginning in the 1980s, the federal government initiated a process of transfer of control to the territorial government of the Northwest Territories. Regional health boards were established, charged with the task of determining policies and administering programs. Such boards usually



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have a majority of Inuit and other aboriginal members. With the inauguration of Nunavut in 1999, for the first time, there is a political jurisdiction in Canada where the Indigenous people substantially outnumber the non-indigenous, (some 80 per cent of the population). The process of establishing its own health bureaucracy is still on-going.

Greenland received Home Rule from Denmark in 1979, becoming perhaps the world's first autonomous Inuit "country." There was a gradual transfer of responsibilities for most public sectors, excluding foreign affairs and defence. Health services were the last to be transferred in 1992.

Statehood in Alaska in 1959 led to conflict over Native lands, culminating in the Alaska Native Claims Settlement Act of 1971. In return for agreeing to the extinguishments of aboriginal claims, Alaska Natives received both land and cash, and regional Native corporations were established. Increasingly these corporations have assumed the task of organizing and delivering their own health services, and are assuming the responsibilities once held by the Indian Health Service.

With the collapse of the Soviet Union, Indigenous peoples were released from the totalitarian strictures of the state, but faced new economic dislocations. The health-care system suffered from severe shortages and the reduction of staff due to the out-migration of non-indigenous health professionals.

Self-determination for Indigenous peoples continues to evolve, and its impact on health care delivery, and ultimately on the improvement of population health status, remains to be assessed. It is hoped that informed observers of and participants in this process, including students of the University of the Arctic, will contribute to this task.

## Supplementary Readings/Materials

For a general textbook on population health, which covers the materials under the first heading, "Understanding Health and Health Care," please refer to:

Young, T. Kue. *Population Health: Concepts and Methods*. New York: Oxford University Press, 1998. [ISBN:0-19-511972-X]

The rest of the module closely follows the monograph on the health of the Inuit:

Bjerregaard, Peter, and T. Kue Young. *The Circumpolar Inuit: Health of a Population in Transition*. Copenhagen: Munksgaard, 1998. [ISBN: 87-16-11905-3]



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Information on the Canadian North can be found in:

Waldram, James B., D. Ann Herring, and T. Kue Young. *Aboriginal Health in Canada: Historical, Cultural and Epidemiological Perspectives*. Toronto: University of Toronto Press, 1997 [ISBN: 0-8020-6887-1]

### Student Project

In this project, you will apply what you have learned in this module to a specific population that is familiar to you. Seek out and critically select information from the scientific literature and government statistics, integrate and organize your thoughts and ideas, and finally produce a paper that is coherent, understandable, and concise.

You can select your population a variety of ways, for example:

The population of an entire region, for example: State of Alaska (USA), Chukotka Autonomous Region (Russia), Greenland, Nunavut Territory (Canada), Norrbotten County (Sweden).

A population defined by ethnicity and cultural affiliation, for example: Saami, Evenk, Dene, Sakha.

You can also create your special group within these geographic and ethnocultural populations based on age and gender (e.g., women, elderly, children, etc.), or occupations (e.g., fishermen, herders, miners, etc.). For example, Saami children in the north of Finland, Greenlandic migrants in urban Copenhagen, National Guardsmen of Alaska.

Once you have selected your population, consider the following questions:

- *The demographic situation*: What is the estimated size of your population? What are the characteristics of this population?
- *Significant health problems*: What is the health status of this population? What are its major diseases and health problems? Cite statistical data in support, criticize the quality of the data, and identify gaps.
- *Determinants of health*: What are the factors that produce the health problems in this population? Is there any evidence that these factors are responsible? Are there alternative perspectives on the causes of health problems in this population?
- *Potential solutions*: What can be done to improve the health of this population? What kind of services are needed? What kind of resources are needed to solve the problem?



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## Glossary of Terms

Please note that some terms marked in boldface in the text are not listed here if they are sufficiently explained in the text itself.

|               |   |
|---------------|---|
| age-structure | The distribution of a population into different age groups. Often shown graphically as an age-sex pyramid   |
| anemia        | Anemia occurs when the blood has a lower than normal concentration of hemoglobin, the iron-containing substance that carries oxygen to the tissues. A major cause of anemia is iron-deficiency in the diet.   |
| arthritis     | Inflammation of the joints. There are many clinical types, the commonest one is called osteoarthritis, due to “wear-and-tear.”  |
| BCG           | Bacille Calmette-Guerin—a vaccine used to prevent tuberculosis. It is usually given at birth but is not 100% effective.   |
| botulism      | A disease caused by the ingestion of the toxin produced by the bacteria <i>Clostridium botulinum</i> in contaminated food. Can be fatal.  |
| cholesterol   | A chemical substance which flows in the blood and is associated with hardening and narrowing of the arteries, causing ischemic heart disease; present in some foods rich in animal fats.  |
| dental caries | Rotting of the teeth, “cavities.”   |
| diabetes      | A chronic metabolic disease caused by either deficiency of insulin or the inability of the body to make use of insulin, resulting in too much sugar circulating in the blood. Can lead to serious complications affecting the heart, the nerves, the eyes, and the kidneys. |
| dioxin        | A group of toxic chemicals (one of which is Agent Orange), usually formed as industrial by-products.  |



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|                        |   |
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| hepatitis              | Viral infection of the liver, which has several types, named A, B, C (and beyond). Hepatitis A is primarily a disease of poor sanitation and hygiene. B is transmitted by blood transfusions, intravenous drug use, needlestick injuries, and via sexual intercourse and from mother to baby during childbirth. |
| hypertension           | High blood pressure   |
| hypothermia            | Decrease in body temperature from exposure to severe cold   |
| influenza              | An acute infection of the respiratory tract, commonly referred to as “the flu.” Caused by a virus. Can result in major worldwide epidemics.   |
| ischemic heart disease | Also called coronary heart disease, due to the narrowing of the arteries supplying blood to the heart itself. Can cause a “heart attack,” which can be fatal.   |
| isoniazid              | One of the drugs that kills the TB germ. It first came into use in the 1950s.   |
| measles                | Usually a childhood disease associated with a rash. It is caused by a virus and is highly contagious.   |
| meningitis             | Infection of the linings of the brain (meninges), caused by a variety of microorganisms. Can result in permanent neurological damage and hearing loss.  |
| microorganisms         | Organisms which are so small that they can only be seen under the microscope. Many can cause diseases. Usually categorized as bacteria, viruses, fungi, etc.  |
| morbidity              | Means simply “sickness,” often used in the context of measurement of the extent of a particular disease in a population.  |
| mortality              | Means simply “death,” often used in the context of measurement of the frequency of dying from a particular disease in a population.   |



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| multifactorial                | Means simply “many factors,” often used in the context of diseases having many causes, including both genetic and environmental factors.   |
| nasopharynx                   | The upper passages of the respiratory tract, connecting the nose and the back of the throat.   |
| obesity                       | Means “too much fat.” Specialists tend to distinguish obesity from “overweight” and have specific criteria based on body measurements to define them.                                |
| osteoporosis                  | The loss of bone mass in the body, affects especially elderly women and may result in fractures.   |
| parasites                     | Organisms which inhabit another organism, sometimes causing disease. In humans, parasites can range from microscopic bacteria to large worms.  |
| PCB                           | Polychlorinated biphenyls, a collective name for some 200 chemicals formerly used as fire retardants and insulators, now banned.   |
| pneumonia                     | Infection of the lungs, caused by a variety of microorganisms. Often results in death, especially in the very young, the very old, and people with other serious illnesses.          |
| polyunsaturated fatty acids   | A class of fatty acids (constituent of body fat) which is present in fish and marine mammals and has been shown to prevent heart disease.  |
| post-menopausal               | phase in a woman’s life after the menopause (cessation of menstrual periods).  |
| salivary glands               | The glands in the mouth which produce saliva.  |
| sexually transmitted diseases | A group of diseases, formerly called venereal diseases, which can be passed from person to person through sexual intercourse, and include gonorrhea, syphilis, AIDS and many others. |
| smallpox                      | A disease caused by a virus which can result in severe disfigurement from pock marks; it was completely eradicated from the world in the late  |



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1970s.

|                |   |
|----------------|---|
| stroke         | Sometimes also called cerebrovascular accidents, which result when there is blockage of blood flowing to the brain; may result in long term disabilities. |
| toxaphene      | A complex mixture of chemicals used as a pesticide.   |
| tuberculosis   | An infectious disease, mainly of the lungs, caused by the bacteria <i>Mycobacterium tuberculosis</i> . Often referred to as TB.                           |
| virgin soil    | The theory that isolated populations are unprotected against various introduced infectious diseases.  |
| whooping cough | An infectious diseases caused by the bacteria <i>Bordetella pertussis</i> , associated with persistent, severe coughing spells.                           |

## References

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