

CANCER IN RUSSIAN INUIT

YU.P. NIKITIN, N.S. BOICHENKO, T.I. ASTAKHOVA, A. T. DOKUCHAEV and E.V. SHUBNIKOV

Using the framework of the Native Cancer Registry, cancer morbidity among Russian Inuit can be obtained from 1960 onwards. Earlier data are available, but have not been verified. Unfortunately, the absence of accurate demographic data for the Native population of about 16 000 people, including the increase from 1 149 to 1 452 Inuit between 1970 and 1989 prevents comparison and analysis of morbidity and mortality data with the non-Inuit population. Nevertheless, the number of cancers has risen in the Native population of Chukotka during the last decade (1979–1988), with a predominance of oesophagus, lung and stomach cancer among the Inuit. In contrast, no cases were observed of the salivary gland, nasopharyngeal and cervical cancers common in other Inuit populations.

Geography and physical environment

The Chukotka peninsula occupies the most north-eastern part of Russia, covering an area of 721 500 km². The northernmost point is Shelagski Cape, at the 70° north latitude; the extreme eastern part of Chukotka is Dezhnev Cape at the 170° east longitude. To the west, Chukotka is bounded by Yakutia (160° east longitude), and to the south by Nagadan and Kamchatka Regions (64° north latitude). Over two-thirds of Chukotka is situated above the Arctic Circle. The majority of the Russian Inuit live along the coastline of the peninsula, and experience a maritime climate with high air humidity. Winter is relatively mild, with thaws; summer is foggy, windy and short.

Low air temperatures and constant high winds characterize the Chukotka climate. The comparatively rich fauna of both sea and land includes birds, fish, seals, whales and other marine animals. The natural characteristics of the land define the main occupations of the Inuit—sea hunting and fishing (whale, walrus, etc.).

Population and human environment

The principal Native populations of Chukotka are the Chukchi and the Inuit. Although the Inuit (who belong to the Arctic or Eskimo subrace of the large mongoloid race) are a more ancient people than the Chukchi, their cohabitation of the same territory has resulted in partial assimilation of the two populations. However, the Inuit of Chukotka have managed to preserve their unique traditions up to the present day.

Because of the severe climate, humans did not come to Siberia until over 30 000 years ago, during the Upper Palaeolith Period, arriving from the south or west. About 3 000–10 000 years ago, humans gradually inhabited the whole of Northern Asia. Somewhat earlier the first groups of people had penetrated through Northern and Eastern Asia to arrive in America via the Bering strait. The first petroglyphs or rock drawings appeared between 1 000 BC and 1 000 AD. About 4 000 years ago, the temperature dropped for a relatively short period, forcing the Inuit to spend most of their time inside. Their distinctive, wonderful culture developed very much at this time, especially their practice of decorating even the most common household objects.

Semen Dezhnev and Fedot Popov first discovered Chukotka for the Western world during their expedition in 1647–1648, and were the first Russians to see the unique way of life of the Native populations. Most remarkable were the various types of dwellings, and the household

Received 13 December 1995.

Accepted 6 March 1996.

From the Institute of Internal Medicine, Novosibirsk (Y.P. Nikitin, T.I. Astakhova, E.V. Shubnikov), and Central Chukotka Hospital, Anadyr, (N.S. Boichenko, A.T. Dokuchaev) USSR.

Correspondence to: Dr. Y.P. Nikitin, Institute of Internal Medicine, Novosibirsk, USSR.

items made of clay mixed with animal blood and sand. Animism and totemism were characteristic beliefs of these times. The Natives believed in supernatural connections of family groups with some kind of animal, plant, object, or even a spirit.

After the October Socialist Revolution in 1917, life in Chukotka changed greatly. Since that time, almost 20% of all married couples are of mixed ethnic origin, of which half involve newcomers. Also, Inuit began to marry coastal Chukchan girls, while the Chukchi were eager to marry Inuit women, who are used to the coastal way of life.

According to 1989 census data, Chukotka residents numbered 157 500 of which 16 026 are Natives. Census data show that the number of Inuit in Chukotka increased from 1 149 in 1970, to 1 278 in 1979, and to 1 452 in 1989. The main regions inhabited by the Siberian Inuit are the Providensky, Chukotsky and Iultinsky regions of Chukotka. Unfortunately census data for 1970 and 1979 on the age-sex structure of the Northern Native populations were kept secret by the State and are thus unavailable to us, while data for the 1989 census were unavailable for this analysis.

Lifestyle and diet

Based on the various dialects, Siberian Inuit can be divided into three groups: Chaplin Inuit, Naukan Inuit, and Sirenik Inuit. In 1932, the Inuit created their own written language based on the Chaplin dialect and in 1937, based on the Russian alphabet. Many Inuit now have higher education. In the cities, they participate in the existing labour structure, although in the small villages the main occupations are still hunting and fishing.

Inuit nutrition has always relied on fish and the meat and blubber of marine mammals (e.g., walrus), but today many Inuit eat their meals in village canteens, in the kindergartens, or at schools, and so their diet is becoming very similar to that of the Russian immigrants. With westernization, the introduction of European food and the movement from the ancient villages have had harmful as well as beneficial effects for the Inuit: people could not always adapt to the new conditions, which resulted in increased depression and alcoholism. Smoking prevalence is also very high.

Health services and cultural accessibility

Only in the last half of the 19th century did the Russian government establish medical stations in Chukotka. The Russians brought not only doctors and medical care, but also 'European diseases' into this region. The traveller G.U. Sverdrup wrote in 1921: 'Here the doctors are needed more than anywhere else. And most of all for treatment of the diseases which have been brought here by the Eu-

ropeans themselves'. The most prevalent diseases were: trachoma, eczema, gastritis and sexually-transmitted diseases. In the summer of 1924, the Sovnarkom (Soviet Peoples Committee) provided a large sum of money to organize detachments of the Soviet Red Cross.

The Russian health care system is based on central health care units (or cultural points), which first appeared in the 1920s and 1930s. Small hospitals in the villages provided the necessary medical care to the population. Doctors tried to gain the trust of their patients and did their best to educate them. Working groups also undertook expeditions to different villages in the tundra.

At present, a tiered system of medical care is in place in Chukotka. The network of medical institutions includes 43 medical units, 20 dispensaries (health care units which provide a full range of preventive and curative health services), 34 local village hospitals, and eight regional hospitals, one in each administrative region of Chukotka. The Central Hospital of Chukotka is the main centre for providing specialized medical services to the population. Oncology specialists are also available at the regional level. Medical care at each tier is free of charge and in addition, cancer patients and Natives receive free medication.

Data sources and classification

The cancer registry for Chukotka Natives was organized in 1979. Using cancer morbidity reports compiled by previous doctors and with the help of death certificates for Chukotka Natives, a retrospective cancer registry was established dating back to 1960 while a prospective cancer registry has been in place since 1979. All available medical documentation is used to obtain information on cancer cases, including documentation received from hospitals, dispensaries, x-ray laboratories, and gynaecological consultations. This information is analyzed and compared with data obtained from the Magadan Oncodispensary (a central hospital providing specialized cancer services), the Registration Offices, and the Magadan Department of the Central Statistical Office of the former Soviet Union.

The cancer registry uses the International Classification of Diseases (9th revision, 1975). A number of different forms provide the standard information used to register cases including: notification of patients with new primary cancer; cancer patient control charts; protocol for untreated cancers; abstract of the patient's case history; and dispensary control charts and physicians' death certificates. Cancer cases are verified by one of the following methods: 1 = histological verification; 2 = cytology; 3 = bone marrow aspiration; 4 = autopsy without histology; 5 = surgical intervention or endoscopy without histology; 6 = x-ray examination; 7 = death certificate only; 8 = clinical data only; 9 = unknown.

Table 1*Number of cases of cancer by site, by sex, and by method of diagnosis, Chukotka Inuit 1969–1988*

Site	Sex			Method of diagnosis					
	Male	Female	Total	Death certificate	Histology	Autopsy histology	X-ray	Cytology	Clinical data
141 Tongue	0	1	1	–	1	–	–	–	–
144 Floor of mouth	0	1	1	–	1	–	–	–	–
150 Oesophagus	5	5	10	7	–	1	2	–	–
151 Stomach	5	3	8	4	3	–	1	–	–
153 Colon	0	2	2	1	–	1	–	–	–
154 Rectum	1	1	2	–	2	–	–	–	–
155 Liver	1	0	1	–	–	–	–	–	1
157 Pancreas	2	0	2	–	1	1	–	–	–
160 Nasal cavities	1	0	1	1	–	–	–	–	–
162 Lung	8	1	9	4	2	2	–	1	–
189 Kidney	0	1	1	–	1	–	–	–	–
192 Central nervous system	1	0	1	–	1	–	–	–	–
202 Lymphoma	0	1	1	–	1	–	–	–	–
Total	24	16	40	17	13	5	3	1	1

Table 2*Cancer* in Chukotka Inuit 1969–1988 by site (ICD 9)*

Site	Men		Women	
	Total No.	Crude rate	Total No.	Crude rate
141 Tongue	0	–	1	7.1
144 Mouth	0	–	1	7.1
150 Oesophagus	5	41.6	5	35.7
151 Stomach	5	41.6	3	21.4
153 Colon	0	–	2	14.2
154 Rectum	1	8.3	1	7.1
155 Liver	1	8.3	0	–
157 Pancreas	2	16.6	0	–
160 Nasal cavities	1	8.3	0	–
162 Lung	8	66.5	1	7.1
189 Kidney	0	–	1	7.1
192 CNS	1	8.3	0	–
202 Lymphoma	0	–	1	7.1
All sites	24	199.7	16	114.3

* Verification of diagnosis: Death certificate only 43%, Histology 33%, Other 24%.

Patterns of cancer morbidity

During 1969–1988, 40 cases of cancer among Inuit (24 in men and 16 in women) were diagnosed in Chukotka

(Tables 1, 2). Most cases were diagnosed either by death certificate only ($n = 17$ (43%)) or histology ($n = 13$ (33%)). The three most frequently occurring cancers accounted for two-thirds of all cases: these were oesophagus ($n = 10$ (25%)), lung ($n = 9$ (23%)) and stomach ($n = 8$ (20%)). While cancers of the oesophagus and stomach were important cancers for both men and women, all but one of the nine lung cancers occurred in men. Colon and pancreatic cancer accounted for two cases each, and no other form of cancer accounted for more than one case. Interestingly, no cases were observed of cancers of the salivary gland, nasopharynx or cervix, cancers common in other Inuit populations, and no cases of breast cancer were reported.

Detailed tabular material by 5-year calendar periods 1969–1988 is available upon request. Please contact the Danish Cancer Registry, Danish Cancer Society, Strandboulevarden 49, DK-2100 Copenhagen, Denmark.

ACKNOWLEDGEMENT

This project was supported by the Danish Cancer Society (Grant No. 90-7617).

REFERENCES

All references are in Russian. A reference list can be obtained from the Danish Cancer Registry.