DATA BRIEF FROM THE CIRCUMPOLAR HEALTH OBSERVATORY
Introduction and population [2010-1]

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In this issue, the Journal begins a new series *Data brief from the Circumpolar Health Observatory*. The series will periodically feature data outputs from the Circumpolar Health Observatory [CircHOB] circhob.circumpolarhealth.org. CircHOB is a project proposed by the Arctic Human Health Expert Group [AHHEG] and authorized by the Arctic Council at a meeting of Senior Arctic Officials in April, 2010.

Background

CircHOB is an international, open access, collaborative health information system, involved in systematic, standardized, and consistent data collection and analysis. It is population-based, and covers all northern regions in all circumpolar countries. CircHOB's purpose is to monitor trends and patterns in health status, health determinants, and health care, and provide an on-going and sustainable knowledge base and analytical support for researchers, statisticians, health care providers, public health practitioners and policy makers. CircHOB also serves as a resource for training and research in population health and health systems and enhances partnerships and collaborations among health and statistical agencies in circumpolar countries and regions.

CircHOB extends and updates the data tables, charts and maps originally published in *Circumpolar Health Indicators* as a Circumpolar Health Supplement, the sister publication of the Journal. Currently, its website provides access to the 2000-2004 datasets and associated thematic mapping tools based on UNESCO's Flash-based StatPlanet software. The datasets are currently being updated to 2009 and will also be presented for download and interactive visualization. Reference materials and statistical reports related to the data are also being catalogued for a fully searchable online document database.

CircHOB is hosted at the Institute for Circumpolar Health Research data center [www.ichr.ca]. ICHR research affiliates and staff are responsible for database development and maintenance, data retrieval, analysis, and presentation.

Geographical coverage

The northern regions covered by CircHOB are shown in Figure 1 and the key to the 2-letter country and region codes are listed in Table I.

The whole of Alaska and Greenland are included in CircHOB. Northern Canada includes only the three northern territories, all located above 60° N latitude. The northern-most counties in Norway, Sweden, and Finland constitute the northern regions of those countries. ["County" here refers to *fylke* in Norway, *län* in Sweden, and *lääni* in Finland]. Note that in 2010, Finland abolished the *lääni* and replaced it with the *aluehallintovirasto* or AVI, translated as regional state administrative agency. For the northern regions of Oulu [now called Pohjois-Suomi] and Lappi, there is little boundary change.

The situation in Russia is quite complex. The Russian Federation is composed of different types of administrative divisions called federal "subjects" (*subyetkty*), including republic, *kray*, *oblast*, autonomous *okrug*, and federal city, with varying degrees of autonomy. An autonomous okrug (AO), with the exception of Chukotka, is generally part of some higher level units such as an oblast or kray, and usually represents the traditional territory of some indigenous ethnic group. Demographic and health data are usually available for these AO separately. Note that as of January 1, 2007, the Taymyr, Evenki and Koryak AO ceased to exist as distinct federal subjects, and were fully absorbed into the Krasnoyarsk kray and Kamchatka kray, although some statistics continue to be produced for these former AOs.
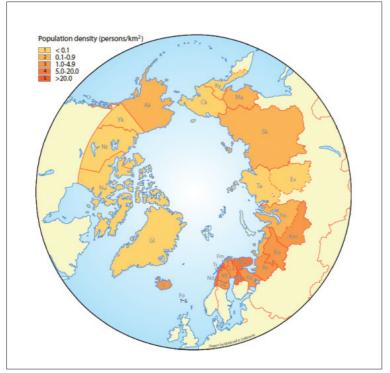

Figure 1. Map showing circumpolar regions and their population density.

Population

In assessing the health of a population, accurate enumeration of the population is needed to provide the denominator for the rates and proportions which constitute many health indicators. CircHOB provides the mean or mid-year population and its age-sex distribution aggregated in 5-year age-groups (0-4, 5-9, etc). Other population-related indicators are also included, such as population density (Fig.1), the proportion of indigenous peoples in the population, and the population of selected cities. In health indicators such as age-specific mortality rates, both the numerator (number of deaths) and denominator (size of population) are derived from the same geographical region. Since many regions have small populations, it will frequently be necessary to combine multiple years of event data. It should be noted that population counts are being used as a proxy for person-years at risk, which is the real denominator for incidence rates. That also makes the calculation of confidence intervals more straightforward (compared to the alternative of thinking of rates for a multiple year period as an average of annual rates).

Sources of data and limitations

There are two sources of information on population – the census and population registry. Both are in use in the circumpolar countries. All data presented in CircHOB are retrieved from websites in the public domain which serve as a portal to public access data, supplemented by special requests to the relevant agencies to fill specific data gaps, especially for subnational and regional data.

The Nordic countries have well established population registries, which are continuously updated, and thus capable of generating the precise population of the country and its regions at a point in time, such as the beginning of the year (January 1, as in the case of Denmark, Greenland, Faroe Islands, and Norway), or at year end (Dec 31, as in the case of Finland, Iceland and Sweden). Where mean population is not published, it can be obtained by averaging the Jan 1 or Dec 31 populations of two successive years. Decennial population and housing censuses are also conducted in Norway and Finland (but discontinued in other Nordic countries), primarily to obtain information about living conditions and other characteristics of the population. Iceland plans to reinstate the census in 2011. Other countries rely on special-purpose sample surveys.

Canada, United States and Russia rely on periodic censuses. Canadian censuses are conducted every 5 years in the years ending in "1" and "6". In the United States, a census is conducted once every 10 years in the year ending in "0". Russian censuses are irregular – the last Soviet census was completed in 1989, and the first post-Soviet census in 2002. A new census is scheduled for October 2010. In the "intercensal" years, these jurisdictions produce annual estimates of the population, taking into account data on births, deaths, and migrations. It is these annual estimates (for all years including census years) that are presented in CircHOB. They are preferable to the raw census counts as denominators.

Population data are available from the following websites:

Canada Statistics Canada, www.statcan.ca

Denmark Danmarks Statistik
[Statistics Denmark] Statbank, www.statbank.dk

Faroe Islands
Hagstova Føroya
[Statistics Faroe Islands]
www.hagstova.fo

Finland Tilastokeskus [Statistics Finland]
www.stat.fi/tup/tilastotietokannat

Greenland
Grønlands Statistik / Kalaallit
Nunaanni Naatsorsueqqissaartarfik
[Statistics Greenland] www.stat.gl

Iceland Hagstofa Íslands [Statistics Iceland]
www.statice.is

Norway Statistisk sentralbyrå
[Statistics Norway] www.ssb.no

Russia Federal'naia sluzba
gosydarstvennoi statistiki
[Federal State Statistics Service]
www.gks.ru

Sweden Statistika centralbyrån
[Statistics Sweden] www.ssd.scb.se

United States
Centers for Disease Control
and Prevention
CDC Wonder http://wonder.cdc.gov

Patterns and trends

The population density (expressed as number of persons per km²) shown in Fig 1., varies from 0.02 in Nunavut to 35 in the Faroe Islands. Table 1 shows the trend in mean population from 1990 to 2009. There has been little change in the mean population of Greenland and the northern regions of the Nordic countries, whereas Alaska, northern Canada and Iceland witnessed substantial growth. Of particular note is the depopulation of many northern Russian regions, with some losing more than half its population in 20 years. In only two regions - Yamalo-Nenets AO and Khanty-Mansi AO - which experienced large scale oil and gas development, did the population increase.

While indigenous people are a population of special interest, not all circumpolar regions provide statistical data that can be disaggregated by ethnicity. A future data brief will discuss the problems associated with enumerating circumpolar indigenous people.

Concluding remarks

CircHOB is a new open access online resource designed to serve the needs of researchers, statisticians, health care providers, public health practitioners, and policy makers in all circumpolar countries. The *Data Brief* series will present different health indicators, inform readers of data availability, highlight methodological issues and summarize changes and new developments at the Observatory. While this first Data Brief focuses on population data, future changes will be noted on the website or through any of the affiliated subscription-based social media tools (RSS Feeds, Facebook, Twitter). Feedback from users is essential for the continuous improvement and sustainability of CircHOB. A monitored wiki mechanism is also being developed and will be used to provide a regulated mechanism for feedback, keep the site contents current, and enhance data quality. Readers are encouraged to visit the site and provide feedback specific to the population data or other comments.

Table I. Trend in mean population, 1990-2009.

Code	Country/Region	1990	2000	2009	% change 2009/1990
US	United States	249622814	282171957	307006550	23.0
Ak	Alaska	553290	627499	698473	26.2
CA	Canada	27697530	30685730	33739859	21.8
Yk	Yukon	27774	30431	33653	21.2
Nt	Northwest Territories	37330	40480	43439	16.4
Nu	Nunavut	21580	27498	32183	49.1
	Northern Canada	*86684*	*98409*	*109275*	*26.1*
DK	Denmark	5140939	5337344	5519441	7.4
Gl	Greenland	55589	56176	56323	1.3
Fo	Faroe Islands	47559	45749	48676	2.3
IS	Iceland	254788	281154	319246	25.3
NO	Norway	4241473	4490967	4828726	13.8
Nd	Nordland	239468	238702	235826	-1.5
Tr	Troms	146705	151469	156024	6.4
Fm	Finnmark	74369	74073	72674	-2.3
	Northern Norway	*460542*	*464244*	*464523*	*0.9*
SE	Sweden	8558835	8872110	9298515	8.6
Vb	Västerbotten	251054	256177	258180	2.8
Nb	Norrbotten	263289	257168	249348	-5.3
	Northern Sweden	*514343*	*513345*	*507528*	*-1.3*
FI	Finland	4986431	5176209	5338871	7.1
Ou	Oulu	442004	457573	473543	7.1
La	Lappi	200324	193060	183856	-8.2
	Northern Finland	*642328*	*650633*	*657399*	*2.3*
RU	Russian Federation	147969414	146596870	141915638	-4.1
Mu	Murmansk Oblast	1190127	931969	839413	-29.5
Ka	Kareliya Republic	791589	732138	685889	-13.4
Ar	Arkhangelsk Oblast	1572231	1379726	1258422	-20.0
Ne	Nenets AO	51830	41053	42184	-18.6
Ko	Komi Republic	1244388	1050377	954807	-23.3
Yn	Yamalo-Nenets AO	488869	497282	544911	11.5
Km	Khanty-Mansi AO	1273585	1371548	1529213	20.1
Tm	Taymyr AO	51316	38257	36852	-28.2
Ev	Evenki AO	24148	18241	16391	-32.1
Sk	Sakha Republic	1115232	959993	949630	-14.8
Ma	Magadan Oblast	387401	197960	162097	-58.2
Ky	Koryak AO	37666	26238	20724	-45.0
Ck	Chukotka AO	160096	59574	49046	-69.4
	Northern Russia	*8336644*	*7263303*	*7047392*	*-15.5*
	Total Northern Regions	10951766	10000512	9908834	-9.5

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