DATA BRIEF FROM THE CIRCUMPOLAR HEALTH OBSERVATORY

Infectious Diseases [2011:1]

T. Kue Young

Dalla Lana School of Public Health, University of Toronto, Toronto, Canada

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INTRODUCTION

Although the public health significance of infectious diseases has decreased substantially in the past half-century, the overall burden of infectious diseases in the Arctic remains high, especially among the Indigenous populations in some regions.

Disease surveillance is an integral part of public health practice in the national and regional health care systems of circumpolar countries. Countries and regions also collaborate in the collection and sharing of data on communicable diseases; for example, the International Circumpolar Surveillance (ICS) project for the prevention and control of emerging infectious diseases, which was established in 1998 and authorized by the Arctic Council (1). Another example is EpiNorth, a co-operation project in communicable disease control involving the Nordic and Baltic countries and several regions in north-western Russia (2).

The Circumpolar Health Observatory (CircHOB), based at the Institute for Circumpolar Health Research, monitors and publishes a series of health indicators for 27 circumpolar regions. It tracks the incidence of 2 specific infectious diseases: tuberculosis (TB) and gonorrhea. These are 2 socially and epidemiologically important diseases which are reported consistently and regularly by all the regions, and information on them is publicly available.

Concepts and definitions

Infectious diseases are defined on the basis of their causative microorganisms, which in the case of the 2 selected diseases are the bacteria *Mycobacterium tuberculosis* and *Neisseria gonorrhœae*. There are, however, operational case definitions used by public health agencies for the purpose of surveillance – see, for example, the ones used by the Centers for Disease Control and Prevention (CDC) of the United States (3). Inclusion and exclusion criteria do vary across different jurisdictions, and in the absence of laboratory confirmation, cases defined on the basis of clinical signs and symptoms or other investigations (such as X-ray) may not be completely comparable internationally. When determining the number of confirmed cases, CircHOB accepts those that are reported by the various public health agencies and released to the public. This is adequate for the purpose of showing broad spatial patterns

and temporal trends. Projects such as ICS are labour- and resource-intensive in assembling detailed and standardized clinical, demographic and microbiological data from different laboratories, and are useful for implementing or evaluating targeted prevention and control programs.

The mean annual incidence rates for these 2 diseases among the 27 circumpolar regions during 2000–04 and 2005–09 are presented in Table I. The annual incidence rate of a disease is taken as the number of new cases reported each year, divided by the mean population of that year. This is usually expressed as per 100,000 persons.

Data sources

United States

All-race data for the United States, including Alaska, are available from the CDC On-Line

Table I. Mean annual incidence rates (per 100,000) of tuberculosis and gonorrhea in circumpolar countries and regions.

Code	Country/Region	Tuberculosis		Gonorrhea	
		2000–04	2005–09	2000–04	2005–09
US	United States	5.3	4.3	121.1	112.2
Ak	Alaska	9.7	7.8	80.8	98.9
CA	Canada	5.4	4.9	24.2	34.2
Yk	Yukon	5.2	12.8	41.7	48.9
Nt	Northwest Territories	21.1	24.8	357.2	484.5
Nu	Nunavut	106.5	153.0	249.3	537.0
	Northern Canada	*40.5*	*58.4*	*230.9*	*367.2*
DK	Denmark	8.4	7.0	4.1	8.2
Gl	Greenland	137.5	126.2	1502.6	1539.0
Fo	Faroe Islands	3.4	1.7	1.7	0.8
IS	Iceland	3.6	3.4	2.3	9.2
NO	Norway	6.2	6.6	5.8	5.6
Nd	Nordland	4.8	5.5	3.4	2.6
Tr	Troms	5.5	5.0	4.5	5.2
Fm	Finnmark	9.8	4.7	5.4	4.1
	Northern Norway	*5.8*	*5.2*	*4.1*	*3.7*
SE	Sweden	4.9	6.0	6.3	7.3
Vb	Västerbotten	5.2	4.0	2.8	1.9
Nb	Norrbotten	3.3	3.7	2.6	3.4
	Northern Sweden	*4.2*	*3.9*	*2.7*	*2.7*
FI	Finland	8.6	6.6	4.6	4.2
Ou	Oulu	8.8	6.0	2.3	2.2
La	Lappi	8.9	9.5	3.4	1.9
	Northern Finland	*8.8*	*7.0*	*2.6*	*2.1*
RU	Russian Federation	85.3	83.4	96.1	60.1
Mu	Murmansk Oblast	72.1	57.5	133.6	76.0
Ka	Kareliya Republic	78.5	68.2	198.8	121.3
Ar	Arkhangelsk Oblast	91.9	62.5	170.0	103.9
Ne	- Nenets AO	49.8	46.2	128.5	152.8
Ko	Komi Republic	90.5	88.2	193.2	127.1
Yn	Yamalo-Nenets AO	84.7	80.9	89.0	64.0
Km	Khanty-Mansi AO	87.2	88.7	137.1	86.8
Tm	Taymyr AO	70.1	65.7	190.9	98.6
Ev	Evenki AO	172.2	142.4	108.0	127.6
Sk	Sakha Republic	91.4	83.2	231.7	163.9
Ma	Magadan Oblast	98.4	82.9	202.8	102.9
Ky	Koryak AO	333.9	451.1	172.1	166.9
Ck	Chukotka AO	68.4	74.3	291.5	270.3
	Northern Russia	*87.3*	*77.7*	*169.3*	*108.2*
	Total northern regions	66.1	58.4	137.4	97.6

Tuberculosis Information System (4) and Sexually Transmitted Disease Morbidity (5), both accessible from the CDC Wonder interactive website.

Canada

The Public Health Agency of Canada publishes an annual report entitled *Tuberculosis in Canada* (6), as well as the Sexually Transmitted Infections Data Tables (7), both of which are available online. The tables contain data for the country as a whole and also for each province and territory, including Yukon, Northwest Territories and Nunavut.

Denmark, Greenland and Faroe Islands

Tuberculosis data are available from the Statens Serum Institut's disease-monitoring tables and graphs in its interactive website (in Danish only) (8). For gonorrhea, the number of cases has to be extracted from the weekly bulletin *Epi-News* (separate Danish and English editions), which provides an epidemiological update for this disease in an issue each year (9). Note that Denmark surveillance data do not include cases from Greenland or Faroe Islands.

Data for Greenland and Faroe Islands are published in the annual reports of their respective Chief Medical Officers (10,11).

Iceland

The Directorate of Health provides on its website an annually updated spreadsheet containing all notifiable communicable diseases (12).

Norway

Both tuberculosis and gonorrhea are among the diseases listed in the Norwegian Institute of Public Health's Surveillance System for Communicable Diseases (MSIS) interactive website (13).

Sweden

Cases of TB reported by county are tabulated in the report *Tuberculosis in Sweden* (and its predecessor prior to 2003, *The Swedish Tuberculosis Index*), jointly published by the Swedish Institute for Infectious Disease Control (SMI) and the Swedish Lung Association (14). The number of cases of gonorrhea is retrievable from SMI's statistical database (15).

Finland

Communicable disease surveillance is the responsibility of the National Institute of Health and Welfare (THL), which merged the former National Public Health Institute (KTL) and the National Research and Development Centre for Welfare and Health (STAKES). The number of reported cases is available from the THL interactive statistical database (16).

Russia

The chief source of publicly available information on disease surveillance in Russia and its regions is the report *Health in Russia*, published in 2001, 2005 and biannually thereafter (17). A continuous series of trend data for the Russian Federation as a whole is available for all years, but for the regions, only data for the 1 year prior to the year of publication are available (i.e., 2000, 2004, 2006 and 2008). For the Nenets, Taymyr, Evenki, Koryak and Chukotka AO, data for additional years are reported in *Economic and Social Indicators of Regions of Residence of Numerically Small Peoples* (18), while data for the Khanty-Mansi and Yamalo-Nenets AO appear in the *Economic and Social Indicators in the Far North and Similar Areas* (19). Since 2005, the Central Research Institute of the Department of Health and Social Development has released biannual statistical tables on "socially important" diseases, which include TB and gonorrhea, on its website, Mednet (20).

Patterns and trends

Substantial disparities exist for both infectious diseases across circumpolar countries and regions (Table I). For the 2005–09 period, the incidence of TB in the region with the highest rate (Koryak AO) was over 270 times that of the region with the lowest (Faroe Islands). Fig. 1 shows that TB is currently an extremely serious problem in Russia and all its northern regions, with Greenland and Nunavut nestled among them near the top ranks. All of the Nordic countries and their northern regions, as well as Canada, United States and Alaska, have rates below 10/100,000. Between this group and the extreme high-risk group of Russia-Nunavut-Greenland are Yukon and the Northwest Territories, which have rates that are

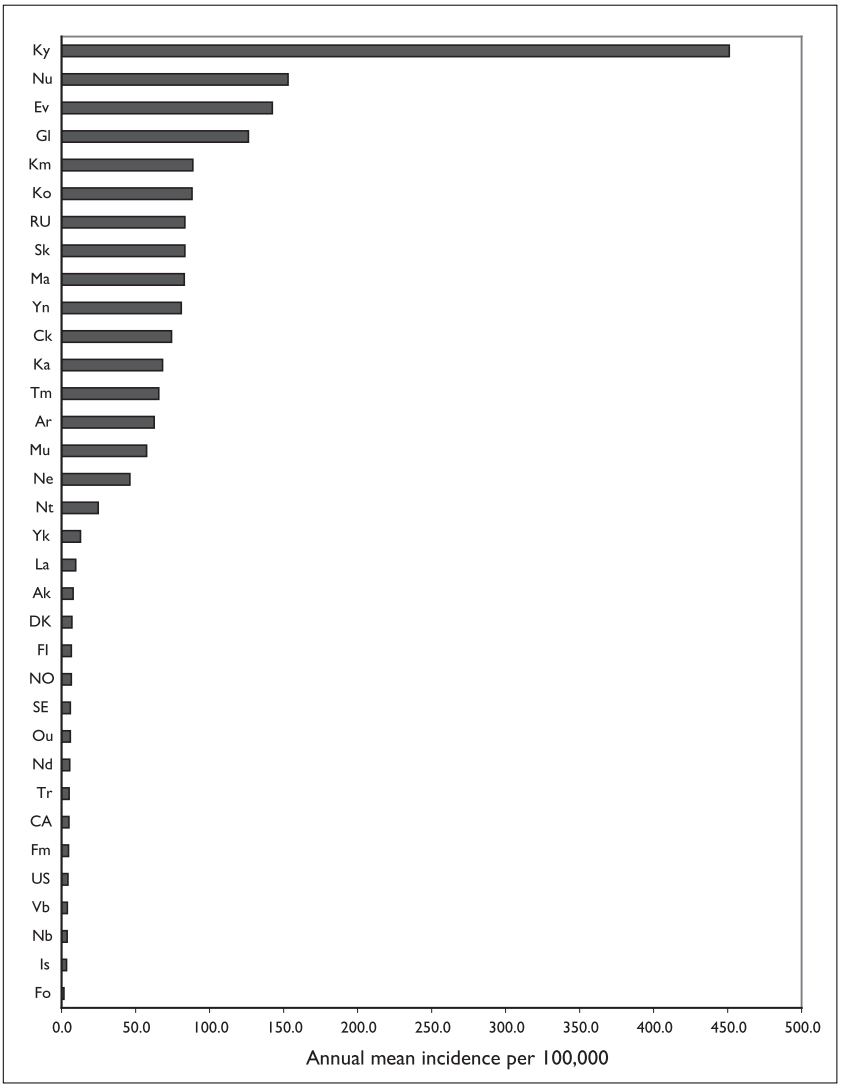

Figure 1. Mean annual incidence rate of tuberculosis (per 100,000) among circumpolar countries and regions, 2005–09.

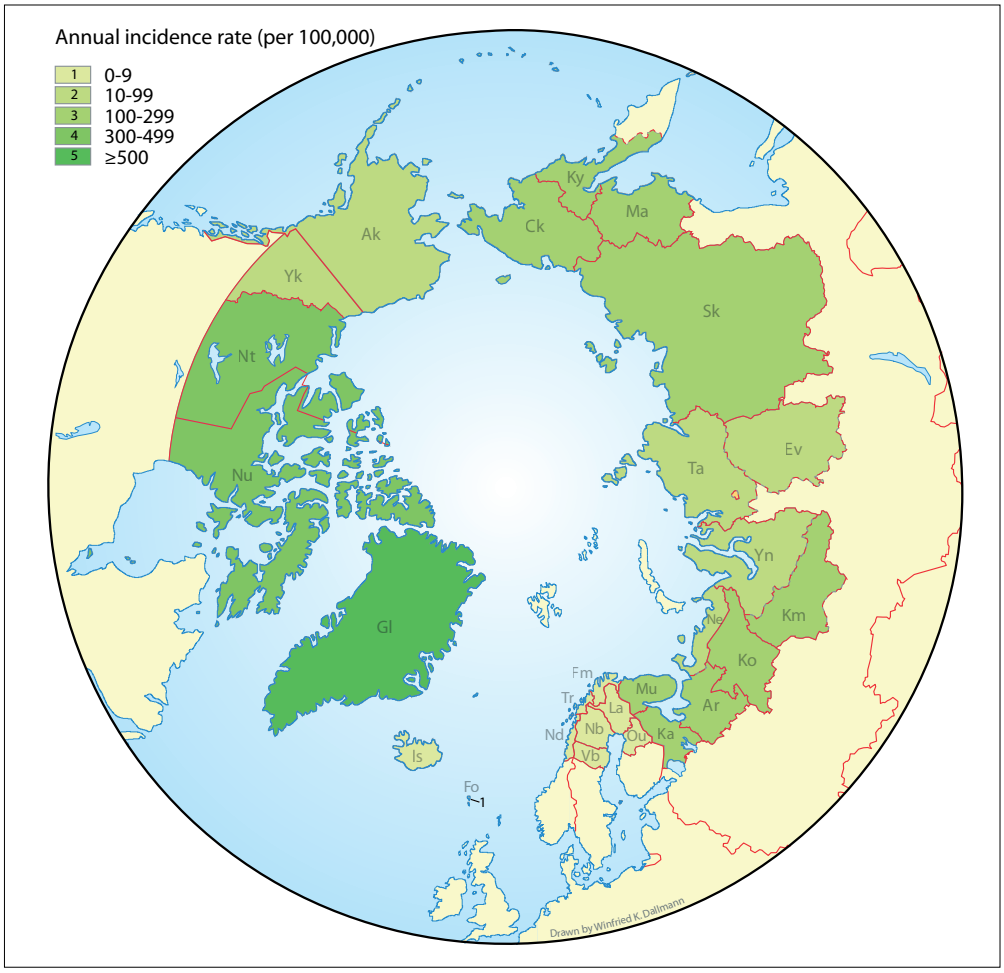

Figure 2. Mean annual incidence rate (per 100,000) of gonorrhea in circumpolar regions.

3 and 5 times higher than that of Canada as a whole, but nothing that matches the scale of Nunavut, whose rate is 30 times that of Canada. Although the rate for the State of Alaska is low by circumpolar standards, it is nonetheless some 80% higher than that of the national rate in the United States. However, within Alaska, the Alaska Native rate during this period is 30/100 000, about 4 and 7 times that of the state and national rates, respectively (21). The Alaska Native rate would be placed just above that of the Northwest Territories, and at the edge of the abrupt rise of the Russian regions in Fig.1.

Fig. 2 is a map showing the spatial distribution of gonorrhea. Unquestionably, Greenland's rate is unsurpassed, and is 3 times the rate of next-lowest ranked region, Nunavut. The Northwest Territories and all the Russian regions are next in line. As with many other

health indicators, the Nordic countries can be found at the low end of the scale.

Comparing the 2 time periods of 2000–04 and 2005–09, there have been improvements in most regions with respect to both diseases, and encouragingly some Russian regions among them. However, Koryak AO continues to be the TB hotspot. There has been no improvement with respect to both TB and gonorrhea in any of the 3 Canadian territories. The situation in Greenland with respect to gonorrhea has also worsened. This is part of a broader issue of sexual health, as rates of other sexually transmitted diseases such as chlamydia are also extremely high in Greenland (22).

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Prof. Kue Young
Dalla Lana School of Public Health, University of Toronto
155 College Street, Room 547
Toronto, Ontario M5T 3M7
CANADA
Email: kue.young@utoronto.ca

Recent news about CircHOB

- At its Steering Group meeting in Oslo in January 2011, the Sustainable Arctic Observing Networks [SAON] officially approved CircHOB as a SAON Task. For more information about SAON, visit www.arcticobserving.org.
- The first major update on the Population module has now been posted on CircHOB: http://circhob.circumpolarhealth.org. Tables on total population, age-sex distribution and population density have been updated to the year 2009. In addition, a detailed methodological note on data sources and quality is also included. Other updates will be added in the forthcoming months.