
Health Goals Regional Index 1999

A Report from British Columbia's Provincial Health Officer

November 2000

Office of the Provincial Health Officer
B.C. Ministry of Health
1810 Blanshard Street, Room 3002
Victoria, B.C. V8V 1X4
Telephone (250) 952-0876
Facsimile (250) 952-0877
Internet <http://www.hlth.gov.bc.ca/pho/>

Health Goals Regional Index 1999

The Health Goals Regional Index is a relative measure of health - and the social, economic, and environmental factors that affect health - across regions within British Columbia. The Index is based on indicators and data presented in the *Provincial Health Officer's Annual Report 1999*. The *Annual Report* measures, for the first time, British Columbia's progress towards the health goals adopted by the province in 1998.

Why the Index was Created

In establishing a set of comprehensive health goals, the province defined its mission: "to improve the health of British Columbians, by enhancing quality of life and minimizing inequalities in health status". To gauge progress, we need to consider how health is distributed across the province, in order to discover whether major gaps and inequalities exist.

Each year since 1993, the Provincial Health Officer has issued an annual report on the health of British Columbians, and regional comparisons have been included where data permit. However, this is the first time that comparative data from the annual report have been summarized into overall scores for each region.

We enter into the rating and ranking game somewhat reluctantly. Rating systems for health and health care - rankings issued by the World Health Organization and *Maclean's* magazine are recent examples - are easy to criticize. There are no generally accepted standards about what to measure and how. Furthermore, report card-style rankings are not always helpful or empowering, especially for regions that receive lower rankings.

Feedback from our *Annual Report* readers has prompted us to produce this first-ever Health Goals Regional Index. Many of the concepts and measures require refinement, and there are significant information gaps. Although there are limitations, the available information covers many of the critical aspects of health goals achievement - enough, we hope, to be useful.

The purpose of the Index is to stimulate discussion about the health of regions within the province. Knowing and understanding why regional rankings differ is an important step towards action - action that will improve health overall, while ensuring that some regions and population groups are not being left behind.

How the Ranking was Done

The Index is built from data gathered for the *Provincial Health Officer's Annual Report 1999*, which uses 93 indicators to assess progress towards provincial health goals. For 48 of the indicators, data were available at the regional level. From these, a total of 60 variables were included in the Index.¹ The variables fall into six categories: health status and five of the six health goals.²

¹For some indicators, two or more breakdowns were included, to reflect different aspects of performance. For example, life expectancy was scored for men and women separately, because regional rankings differ by gender. For income assistance rates, the proportion of the population receiving assistance for more than one year was weighted more heavily than for those receiving short-term assistance, because long-term assistance was presumed to reflect more serious hardship.

²Health goal 5 "Improved health for Aboriginal peoples" is not included in this first Index, as up-to-date regional data were not available at the time this report was prepared. Regional data will be included in an upcoming report by the Provincial Health Officer.

The Index methodology is based on recent work carried out by BC STATS to develop summary indicators of social and economic conditions for regions within British Columbia. The first step is to convert the variables into standardized scores so they can be added together. Scores are based on a formula that considers how much each region differs from the provincial median. To prevent an extreme value from skewing the scores, the formula is further refined to tone down the impact of outliers.³

A weighting is applied to each of the variables, to reflect its relative importance (see attached sheet for variables and weightings). In the overall Index, the assigned weights were health status (15 per cent), living and working conditions (Goal 1, 30 per cent), individual capacities, skills, and choices (Goal 2, 15 per cent), physical environment (Goal 3, 10 per cent), health services (Goal 4, 15 per cent), and disease and injury prevention (Goal 6, 15 per cent).

The weights place more importance to indicators of living and working conditions, because of their strong connection to health. The physical environment category received a lower weight than other categories, in part because we have few indicators at the regional level. Work is under way to develop additional measures and data for the physical environment and for the other goals.

The rank is the ordering of each region according to their scores, with 1 being the highest (best)-ranked region, and 20 the lowest.

The 60 variables cover a wide range of topics. Some are direct measures of the population's health status. Others are factors that influence health, and their impact on overall health and well-being varies considerably. Although weighting factors have been applied, results cannot be interpreted as a strict ranking, and it is preferable to think of the regions in clusters.

In the following discussion and on the map (attached), regions are grouped into "quintiles" - five groups of four each - according to where their overall scores fall: the highest-ranked four, the second highest four, the middle four, the second lowest four, and the lowest-ranked four.

Results

Health status varies across British Columbia, with higher levels of health being found in the southern part of the province. Overall, North Shore, Richmond, Capital, and Okanagan Similkameen have the highest ranking on the Health Goals Regional Index. Northern regions of the province have the poorest health, based on the measures available.

A region's health status is related to its standing on the many factors that influence health, as reflected in the health goals. As shown in this and previous reports by the Provincial Health Officer, regions that score well on living and working conditions, early childhood experiences, personal health practices, the physical environment, and health services have a higher level of health. These "determinants of health" that surround individuals, families, and communities tend to go together and to interact. People who are advantaged with respect to these factors are more resistant to diseases, injuries, and other threats to health.

³A paper describing the details of the methodology is available from BC STATS, B.C. Ministry of Finance and Corporate Relations, (250) 387-0374.

Although north-south differences generally apply, each region has strengths and weaknesses on specific indicators. Thompson and Richmond consistently have the highest immunization rates for preschool children, West Kootenay and North Okanagan have the lowest crime rates, and Burnaby has the lowest rates for unnecessary hospitalizations (based on hospital-days for conditions that experts say “may not require hospitalization”).

By examining comparative data, regions can learn from each other as to what is achievable in the various dimensions of health.

Using the Index

The Index provides only a glimpse of health at a single point in time. By examining trends, one discovers that the gap between northern and southern regions has been narrowing on some key health status measures. For example, improvements in infant mortality and life expectancy are being made faster in the Cariboo, North West, and Northern Interior than in other parts of the province, so that rates are beginning to converge. The Index also masks significant sub-regional differences, such as differences within the city of Vancouver, which has a large and diverse population.

To make sense of regional results – and to make the data matter – local interpretation and solutions will be needed. At the local level, Medical Health Officers play a key role in collecting and interpreting statistics about the health of the population, and most local health authorities produce health profiles and other reports that describe and assess the health of the communities they serve. Locally, the Index can be used to make comparisons and to help set targets or benchmarks for the health outcomes each region would like to achieve.

At the provincial level, the Index can help in making decisions about policies and programs, so that these will have the most beneficial impact on the health of British Columbians. Ideally, funding and other investments should target issues of provincial importance, while allowing flexibility for tackling local needs and priorities.

Given the broad scope of the factors that influence health, many strategies and actions could potentially be required to accomplish the goals. However, a great deal of activity – that addresses most aspects of the goals – is already under way.

The Index will be reviewed in the coming year. The Provincial Health Officer welcomes all feedback on the usefulness of the Index and ways in which it can be improved.

Regional Summaries

Highest-Ranked Four

North Shore

Strengths: North Shore ranks at or near the top on most measures of health. North Shore has the highest levels of education, the lowest levels of poverty, and the least unemployment - key factors that influence health. North Shore also has the best overall performance in the health services category. *Weaknesses:* Rates of hepatitis B and pertussis are above the provincial average. Intestinal illness rates are also higher, although this may be a reflection of reporting. On smoking rates (age 19-24) and breast cancer death rates, North Shore ranks about mid-range.

Richmond

Strengths: Richmond has high marks in almost all aspects of health. Richmond ranks number one in life expectancy (83.6 years for women, 78.7 for men) and has the best overall ranking on disease and injury prevention (Goal 6).

Weaknesses: Richmond has relatively high rates of hepatitis B and tuberculosis, in part because the region has many immigrants from countries where these diseases are common. Relative to its overall performance, Richmond does less well in low income rates for children and seniors and low birthweight.

Capital

Strengths: Capital ranks high in all the broad topic areas. Levels of education, employment, and income are generally high in this region.

Weaknesses: Teen pregnancy rates are above the provincial average. Housing affordability and violent crime rates fall mid-range. In the health services category, Capital has relatively high rates of hospital usage for conditions that “may not require hospitalization”, as well as high cesarean delivery rates.

Okanagan Similkameen

Strengths: Okanagan Similkameen has the second highest life expectancy for women, and the third highest for men. This region has relatively low rates of communicable diseases, and the second best rate for women’s participation in screening mammography.

Weaknesses: The available indicators point to potential problems in child and youth health. Okanagan Similkameen has higher than average rates of children in care, confirmed reports of child abuse, and youth smoking.

Second Highest Four

Simon Fraser

Strengths: Simon Fraser scores well on most socioeconomic measures. The region ranks third best on unemployment and income assistance rates, and education levels are above average. Simon Fraser ranks in the top four regions on several indicators of child health: injury deaths, exposure to second-hand smoke, child abuse, and children in care.

Weaknesses: Seniors fall at or below the provincial average on economic hardship measures (per cent receiving the maximum GIS supplement and per cent below the low income cut-off point). Compared to its performance on other measures, Simon Fraser does less well on Goal 6 (disease and injury prevention), with relatively high rates of tuberculosis and HIV and deaths due to heart disease, cancer, respiratory disease, and illicit drugs.

South Fraser Valley

Strengths: South Fraser Valley ranks favourably on most health status and disease prevention measures. The region is in fourth place in potential years of life lost (third place for men). South Fraser Valley has the lowest smoking rate for youth age 19-24 (22 per cent), and is tied with Capital for second lowest overall (19 per cent, ages 12 and over). South Fraser Valley ranks in the top four for deaths due to respiratory disease, unintentional injuries, and suicide.

Weaknesses: South Fraser Valley has a relatively high rate of low birthweight (5.6 per cent), and infant mortality is mid-range.

East Kootenay

Strengths: East Kootenay does well on measures of income and crime. This region has the lowest rate of illicit drug deaths. It also has low rates of sexually transmitted diseases and HIV.

Weaknesses: Relative to other regions, East Kootenay's lowest rankings are in waterborne disease outbreaks, child abuse, infant mortality, exposure to second-hand smoke, and students who take and pass the Grade 12 English exam.

North Okanagan

Strengths: North Okanagan has the lowest violent crime rate in the province. North Okanagan also ranks favourably on most communicable diseases, low birthweight, and teen smoking (age 12-18).

Weaknesses: North has the highest percentage of "alternate level of care days" and the highest cesarean delivery rate. North Okanagan also has relatively high death rates for unintentional injuries, especially for children and youth.

Middle Four

Coast Garibaldi

Strengths: Coast Garibaldi's highest marks are in socioeconomic conditions (Goal 1) and health services (Goal 4), ranking 4th overall in each of these categories.

Weaknesses: Coast Garibaldi's poorest rankings are in death rates (injuries - especially falls - suicide, and heart disease), hip fracture hospitalizations, and boil-water advisories.

Burnaby

Strengths: Burnaby ranks at or above average for life expectancy and premature deaths, and does well on all of the education-related indicators. Burnaby also has high scores on several health services measures, such as may not require hospitalization, cesarean deliveries, and preventable admissions.

Weaknesses: Burnaby has high crime rates and relatively high rates of tuberculosis, hepatitis B, illicit drug deaths, and sexually transmitted diseases.

West Kootenay-Boundary

Strengths: West Kootenay ranks fairly well in most categories. It has the lowest rates in the province for serious property crime, and the fourth lowest rate for spousal assault.

This region also does quite well academically, having the best pass rate for the provincial English 12 exam in 1998/99. Like its neighbour East Kootenay, West Kootenay has low rates of tuberculosis, HIV, and gonorrhoea.

Weaknesses: West Kootenay ranks below the provincial average on life expectancy, infant mortality, and potential years of life lost. West Kootenay has a much higher number of boil-water advisories than other regions, because of the large number of small water systems using untreated surface water supplies.

Peace Liard

Strengths: For non-seniors, Peace Liard has quite low rates of poverty and long-term income assistance. Peace Liard ranks number one in housing affordability, based on the proportion of renters who spend more than 30 per cent of income on shelter.

Weaknesses: Peace Liard has high rates of smoking and exposure to second-hand smoke, and high death rates from lung cancer and respiratory diseases. This region also has a high teen pregnancy rate.

Second Lowest Four

Fraser Valley

Strengths: Fraser Valley ranks at or near the provincial average across a broad range of measures. It ranks better than the norm on low birthweight, infant mortality, and community follow-up of patients admitted to hospital for mental health reasons.

Weaknesses: Relative to other regions, Fraser Valley's lowest rankings are in the areas of low income rates for single-parent families, infant/preschool immunization rates, and reported rates of pertussis.

Upper Island/Central Coast

Strengths: Upper Island/Central Coast ranks better than average on a mix of indicators, including low birthweight, low-income seniors, breast-conserving surgery for breast cancer, influenza immunization rates for care facility residents, and most communicable diseases.

Weaknesses: Upper Island/Central Coast has high rates of youth unemployment, teen smoking, mental health hospitalizations, illicit drug deaths, and suicide.

Vancouver

Strengths: Vancouver scores well on educational attainment; it is second to North Shore in the proportion of adults with post-secondary education. Vancouver has very good results on exposure to second-hand smoke and full marks for water quality (no boil-water advisories in place, and no waterborne disease outbreaks since 1980).

Weaknesses: Vancouver has the lowest overall ranking for living and working conditions (Goal 1), because of its rates of low income, long-term income assistance, income inequality, and crime. Vancouver has other special issues such as HIV/AIDS, illicit drug overdose deaths, sexually transmitted diseases, and tuberculosis, many of which are concentrated in the downtown core. These problems result in Vancouver having the highest regional rate of potential years of life lost for males.

Central Vancouver Island

Strengths: Central Vancouver Island ranks best in the province on two indicators: influenza immunization coverage for the population age 65 and over (64 per cent) and community follow-up of patients who have been hospitalized for mental illnesses (78 per cent seen within 30 days of hospital discharge). Central Vancouver Island also has one of the best results on income levels for seniors.

Weaknesses: Central Vancouver Island shows signs of socioeconomic stress, based on its standing for long-term income assistance, child poverty, and housing affordability. Other measures where this region ranks poorly include infant mortality, teen pregnancy, injury deaths, and suicide.

Lowest-Ranked Four

North West

Strengths: Compared to its overall performance, North West ranks quite well on income-related measures and crime. North West has relatively low rates of communicable diseases, and had the highest influenza immunization coverage for residents of care facilities in 1998/99 (tied with Upper Island, at 94 per cent).

Weaknesses: Unemployment rates are high in this region. Several measures suggest problems with child and family health; rates of spousal assault, child abuse, and children and youth in care are among the highest in the province. In the health services category, North West has high rates of preventable admissions to hospital, mental health hospitalizations, and alternate level of care days.

Thompson

Strengths: Thompson consistently has the highest or second highest levels of infant/preschool immunization, very close to the national target of 97 per cent. Thompson also has the highest participation rates for screening mammography.

Weaknesses: Thompson ranks below the norm on most health status measures, suicide and injury death rates in particular.

Northern Interior

Strengths: Northern Interior scores well on preventive measures such as screening mammography and immunization. This region has better than average rates of communicable diseases. Low income rates are not alarmingly high.

Weaknesses: Northern Interior has death rates significantly above the provincial average, for most major causes of death. Life expectancy is the lowest in the province, about 2.4 years less than the provincial average.

Cariboo

Strengths: In the Cariboo, communicable disease rates are comparable to or better than the provincial average. Compared to its overall ranking, Cariboo does relatively well on low birthweight, crime, and housing affordability.

Weaknesses: Cariboo the highest regional rate for potential years of life lost, and high death rates from most major causes, especially motor vehicle accidents. Like other northern regions, smoking rates are high. The Cariboo region has low rates of post-secondary education and high rates of children and youth in care.

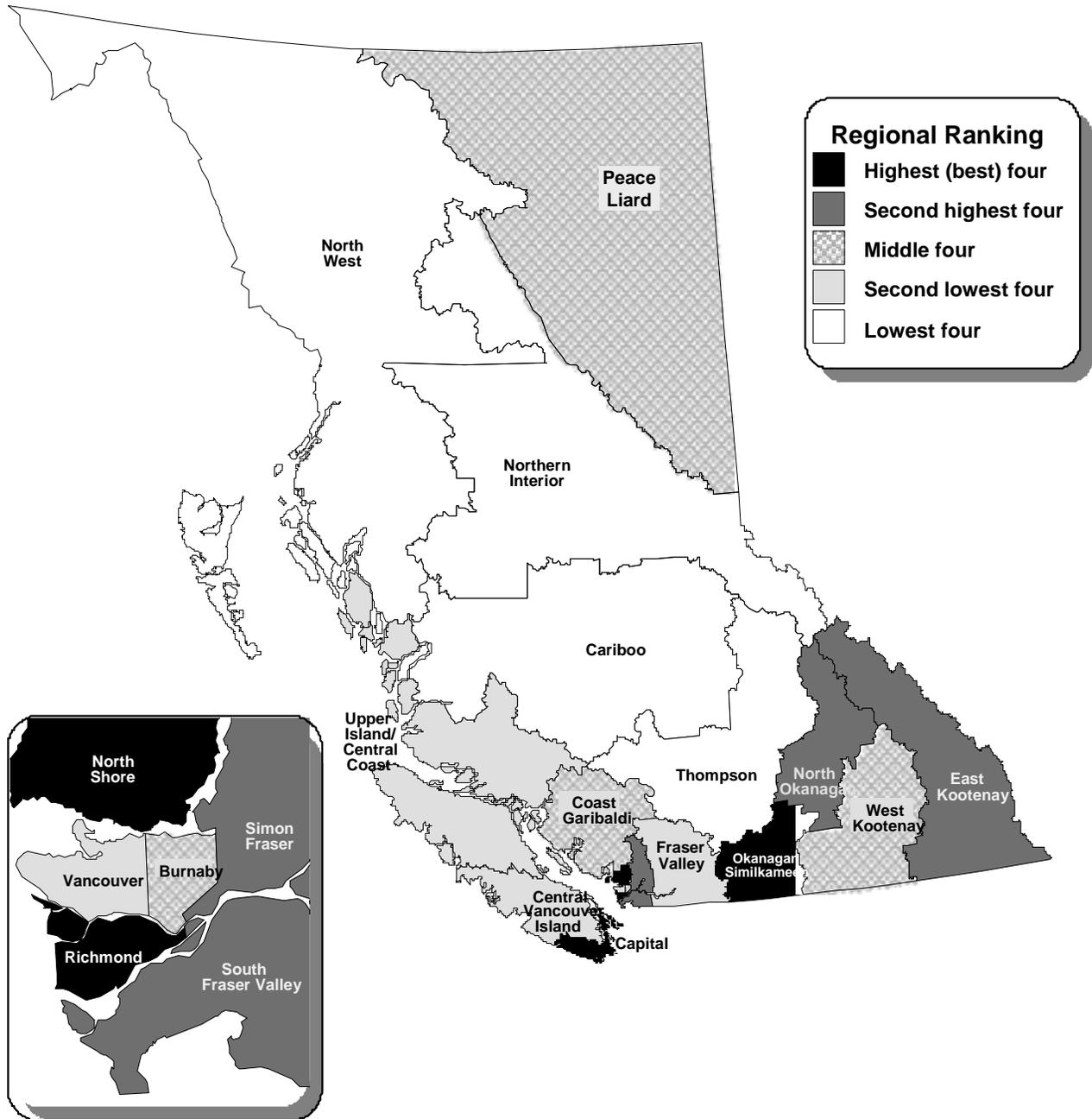
The Provincial Health Officer welcomes your comments on this paper.

Copies of the *Provincial Health Officer's Annual Report 1999* (186 pages) are available on request.

Please address comments and requests to:

Office of the Provincial Health Officer
B.C. Ministry of Health
1810 Blanshard Street, Room 3002
Victoria, B.C. V8V 1X4
Telephone (250) 952-0876
Facsimile (250) 952-0877
Internet <http://www.hlth.gov.bc.ca/pho/>

Health Goals Regional Index



Source: Ministry of Health and Ministry Responsible for Seniors
Office of the Provincial Health Officer

Prepared by BC STATS

November 2000

Regional Rankings - Health Goals Regional Index

Region	Overall ranking	Ranking (1 = best)					
		Health status Wt = 15%	Goal 1 Living & working conditions Wt = 30%	Goal 2 Individual capacities, skills, & choices Wt = 15%	Goal 3 Physical environment Wt = 10%	Goal 4 Health services Wt = 15%	Goal 6 Disease & injury prevention Wt = 15%
Highest-ranked 4							
North Shore	1	1	1	1	4	1	2
Richmond	2	2	2	3	1	3	1
Capital	3	4	3	2	2	9	6
Okanagan Similkameen	4	3	9	14	9	2	3
Second highest 4							
Simon Fraser	5	8	7	4	8	8	12
South Fraser Valley	6	5	10	10	5	10	4
East Kootenay	7	7	5	7	18	7	5
North Okanagan	8	10	11	8	7	13	7
Middle 4							
Coast Garibaldi	9	9	4	11	11	4	17
Burnaby	10	6	16	5	6	5	8
West Kootenay-Boundary	11	17	8	6	16	6	9
Peace Liard	12	11	6	17	15	17	13
Second lowest 4							
Fraser Valley	13	12	14	13	14	14	11
Upper Island/Central Coast	14	16	12	15	10	16	14
Vancouver	15	13	20	9	3	12	15
Central Vancouver Island	16	14	17	12	17	11	10
Lowest-ranked 4							
North West	17	18	13	19	12	20	19
Thompson	18	15	18	16	20	18	16
Northern Interior	19	20	19	18	19	15	18
Cariboo	20	19	15	20	13	19	20

The Health Goals Regional Index is based on indicators and data from the Provincial Health Officer's Annual Report 1999.

The overall ranking is the weighted average of the indices for health status and provincial health goals 1-4 and 6 (regional data are not available for goal 5 at this time).

A total of 60 indicators/variables were used in the scoring (see attached sheet for variables and weightings).

Health Goals Regional Index - Variables and Weightings

Weight	0.15	0.30	0.15	0.10	0.15	0.15
	GOAL 1		GOAL 2	GOAL 3	GOAL 4	GOAL 6
	LIVING AND		INDIVIDUAL CAPACITIES	PHYSICAL	HEALTH	DISEASE AND
Wt	HEALTH STATUS	WORKING CONDITIONS	SKILLS, & CHOICES	ENVIRONMENT	SERVICES	INJURY PREVENTION
0.20	Infant mortality rate	Unemployment rate	0.20 Low birthweight rate	Second-hand smoke exposure	Screening mammography	Death rates
		0.15 age 15 and over		0.30 % of non-smokers age 12+	0.10 participation rate, age 50-74	0.05 cardiovascular disease
	Potential years of life lost	0.05 age 15-24	Educational attainment	0.30 % of households with children		0.05 lung cancer
0.20	men		% of population 25-54 with		Children's ear infections	0.05 breast cancer
0.20	women	Low income rate	0.20 high school graduation	0.20 Boil-water advisories	0.10 % receiving antibiotic	0.05 respiratory disease
		0.05 all children under 18	0.20 completed post-secondary			
	Life expectancy	0.05 in female lone-parent families		Hazards in food premises	Breast-conserving surgery as	Mental health
0.20	men		Grade 12 exam completion	critical hazards found	0.10 % of breast cancer surgeries	0.05 hospitalization rate
0.20	women	Income assistance rate	0.05 Mathematics 12	0.20 per 100 facilities inspected		
		% of population <65 on IA	0.05 English 12		0.10 Cesarean delivery rate	Vaccine-preventable disease
1.00		0.05 for less than one year		1.00		0.05 Pertussis
		0.15 for one year or more	Youth smoking rate		0.10 Preventable admissions rate	0.05 Hepatitis B
			0.10 age 12-18			
		Economic hardship, seniors	0.10 age 19-24		May not require hospitalization	0.05 Tuberculosis rate
		0.10 % of seniors receiving			0.10 as % of all hospital-days	
		maximum GIS supplement	Teen pregnancy rate			0.05 HIV infection rate
			0.10 age 15-17		Expected compared to actual	
		Income inequality			0.10 length of stay in hospital	Sexually transmitted disease
		income share:	1.00			0.05 Chlamydia
		0.05 bottom 50% of families			Alternate Level of Care days	0.03 Gonorrhea
					0.10 As a % of acute care days	0.03 Syphilis
		Crime rate				
		0.10 serious violent crime			Community follow-up of	Intestinal illnesses
		0.15 breaking and entering			mental health admissions	0.05 Reported cases rate
					0.10 % seen < 30 days of discharge	
		Children and youth in care				0.05 Waterborne disease outbrea
		0.05 as % of population 0-18			Medically treatable diseases	
					0.10 Standardized mortality ratio	Injury death rates
		Housing affordability				0.05 children and youth age 0-24
		0.05 Housing >30% of income			1.00	0.05 all ages
		1.00				Hip fracture hospitalizations
						0.05 age 65 and over

The Health Goals Regional Index is based on indicators and data included in the Provincial Health Officer's Annual Report 1999.

For indicator definitions, data sources, and regional data, see Appendix C and Appendix D of the Annual Report.

Immunization rates and Pap smear rates are listed in Appendix D but were not included in the Index, because data were not available for all regions.

The Index methodology is based on recent work carried out by BC STATS to develop summary indicators of social and economic conditions for regions within British Columbia.

Scores are calculated based on a formula that considers how much each region differs from the median value (standardized to the interquartile range).

A paper describing the details of the methodology is available from BC STATS, B.C. Ministry of Finance and Corporate Relations, (250) 387-0374.

0.05 Spousal assault rate

0.05 Child abuse rate

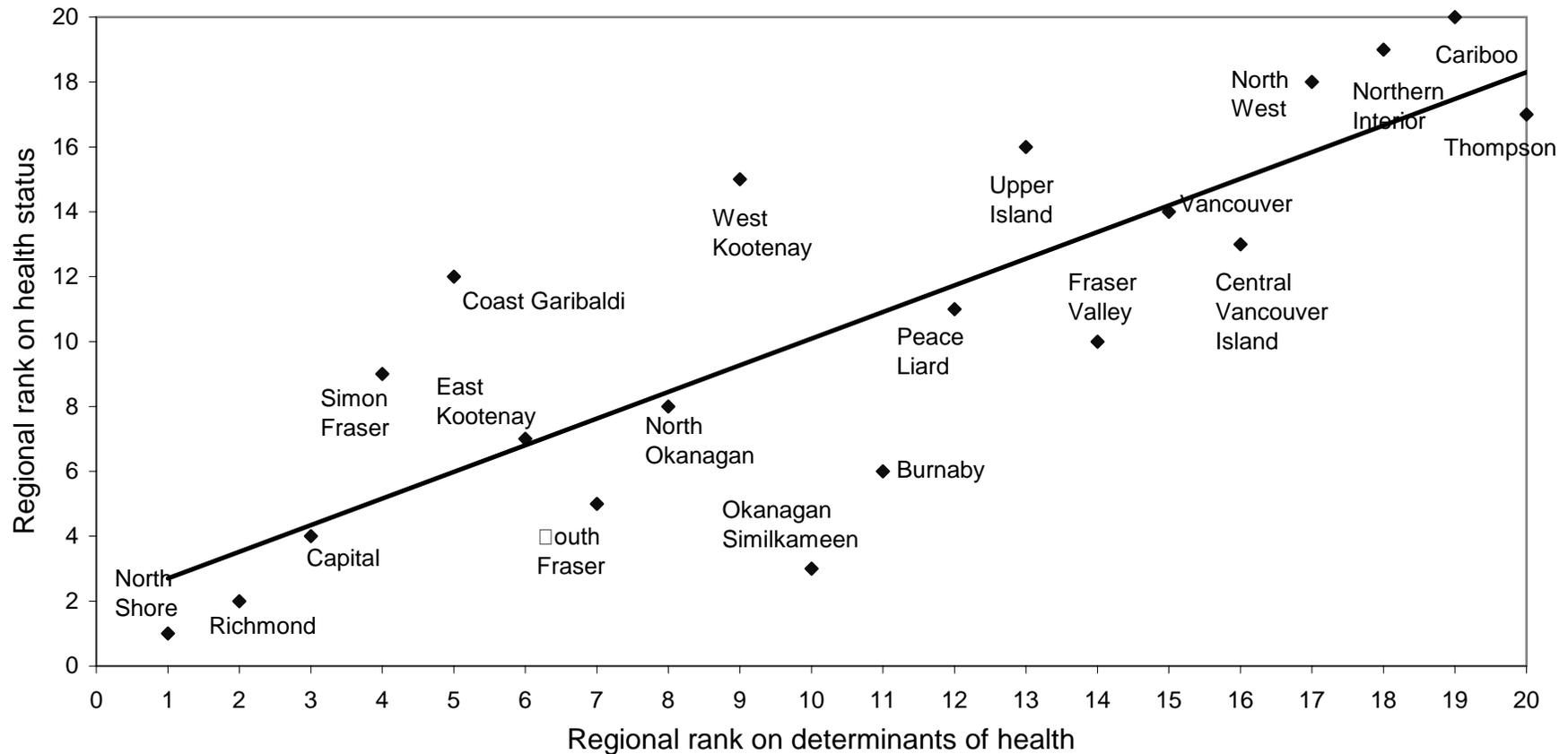
0.05 Illicit drug death rate

0.05 Suicide death rate

1.00

Relationship between Health Status and Determinants of Health

Health Goals Regional Index 1999



Health status is related to factors or "determinants" that surround individuals, families, and communities. In general, regions that score well on health determinants (which include living and working conditions, early childhood experiences, personal health practices, the physical environment, and health services) have a higher level of health.

Determinants of health: Indicators that measure progress on provincial health goals 1-4.

Health status: Indicators that measure population health status and progress on provincial health goal 6.

Rank: 1 = highest (best)-ranked, 20 = lowest-ranked.

Rankings are based on indicators and data presented in the Provincial Health Officer's Annual Report 1999.

Health Goals Regional Index 1999

How the Ranking was Done

Step 1

Select indicators and variables

93 indicators in Provincial Health Officer's Annual Report 1999 → 48 indicators with regional data available → 60 variables included in Index

Step 2

Calculate standardized scores for each variable

- Methodology based on recent work by BC STATS
- Index value = Deviation from provincial median value, standardized by the interquartile range
$$I_j = (D_j - D_{\text{median}}) / (D_{25^{\text{th}}} - D_{75^{\text{th}}})$$
, where
 - I_j is the Index value for region j
 - D_j is the data observation for region j
 - D_{median} is the median observation for data variable D
 - $D_{25^{\text{th}}}$, $D_{75^{\text{th}}}$ are the 25th and 75th percentile observations for data variable D
- Scores further refined to tone down the Index value for outliers
 - If Index absolute value greater than two times the interquartile range, the cube root of the Index value was used

Step 3

Compute indices for health status and each of the health goals

- Apply weightings to each variable, where sum of weights = 1.0
(see Health Goals Regional Index paper for weightings used)
- Compute composite score for Health Status and for Health Goals 1, 2, 3, 4, 6
(regional data not available for Goal 5 at this time)

Step 4

Compute overall Index

- Overall score = weighted average of indices for health status and health goals
Weightings:
Health status 15%, Goal 1 30%, Goal 2 15%, Goal 3 10%, Goal 4 15%, Goal 6 15%

Step 5

Compute regional rankings

- Determine rank, where rank = order of each region according to their scores
1 = highest (best)-ranked, 20 = lowest-ranked
- Group regions into clusters (quintiles - five groups of four each)

Next steps

- Index to be reviewed in the coming year
- Feedback welcome!