Statistics Statistique **Health Indicators** Canadian Institute
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Definitions and Data Sources

1.0   Health Status

Diseases and Conditions

1.1   Low Birth Weight

Definition: *Proportion of live births (birth weight known) less than 2,500 grams.*

Low birth weight is a key determinant of infant survival, health, and development. Low birth weight infants are at a greater risk of having a disability and for diseases such as cerebral palsy, visual problems, learning disabilities and respiratory problems.

Source: Canadian Vital Statistics Database, Statistics Canada and l'Institut de la statistique du Québec (supplementary files).

1.2   Injury Hospitalization Rate

Definition: *Age-standardized rate of acute care inpatient hospitalization due to injuries resulting from the transfer of energy, per 100,000 population.*

(Cause of injury is reported by the first-documented External Causes of Injury Code (E Code) as follows: E800-E807, E810 -E838, E840-E848, E880-E888, E890-E902, E906-E910, E913-E928, E953-E958, E960-E961, E963-E968, E970-E976, E978, E983-E988, E990-E998).

This indicator contributes to an understanding of the adequacy and effectiveness of injury prevention efforts, including public education, product development and use, community and road design, and prevention and treatment resources.

Source: National Trauma Registry, Canadian Institute for Health Information

Deaths

1.3   Infant Mortality Rate

Definition: *Number of infants who die in the first year of life, expressed as a rate per 1,000 live births.*

A long-established measure, not only of child health, but also of the well-being of a society. Reflects the level of mortality, health status, and health care of a population, and the effectiveness of preventive care and the attention paid to maternal and child health.

Source: Canadian Vital Statistics Database, Statistics Canada

1.4   Perinatal Mortality Rate

Definition: *Annual number of stillbirths and early neonatal deaths (deaths in the first week of life) per 1,000 total births (includes stillbirths). Stillbirths are defined here as gestational age of 28 or more weeks. Unknown gestational age is excluded in both numerator and denominator.*

The probability that a fetus considered to be viable will be stillborn or will die before the end of the first week of life. Reflects standards of obstetric and pediatric care, as well as the effectiveness of public health initiatives.

Source: Canadian Vital Statistics Database, Statistics Canada

1.5, 1.6

Life Expectancy

Definition: *The number of years a person would be expected to live from the day he or she was born (for life expectancy at birth) or at ages 65 to 69 (for life expectancy at ages 65 to 69), based on mortality statistics at the time.*

A widely used indicator of the health of a population. Life expectancy measures quantity rather than quality of life.

Source: Statistics Canada (special tabulations)

1.7   Total Mortality Rate

Definition: *Age-standardized rate of death from all causes (ICD-9 001-799, E800-E999) per 100,000 population.*

Indicates the overall health of the population and is similar to what is measured by life expectancy. Age-standardization (as opposed to crude rates) allows for comparisons between health regions, provinces, and countries.

Source: Canadian Vital Statistics Database, Statistics Canada

1.8, 1.9, 1.10, 1.11
Circulatory Disease Death Rate

Definition: *Age-standardized rate of death from circulatory diseases per 100,000 population: all circulatory diseases (ICD-9 390-459), ischemic heart disease (ICD-9 410-414), stroke (ICD-9 430-438) and all other circulatory diseases (ICD-9 390-409, 415-429, 439-459).*

Measures long-term success in reducing deaths due to circulatory disease, compared with other regions, provinces, and countries. Lower death rates indicate success in circulatory disease prevention, detection, and treatment.

Source: Canadian Vital Statistics Database, Statistics Canada

1.12, 1.13, 1.14, 1.15, 1.16
Cancer Death Rate

Definition: *Age-standardized rate of death from cancer per 100,000 population, for all cancers (ICD-9 140-208) and for specific sites: colorectal (ICD-9 153-154), lung (ICD-9 162), breast (ICD-9 174), and prostate cancer (ICD-9 185).*

Measures long-term success in reducing deaths due to cancer, compared with other regions, provinces, and countries. Lower death rates indicate success in cancer prevention, detection, and treatment.

Source: Canadian Vital Statistics Database, Statistics Canada

1.17, 1.18, 1.19, 1.20
   Respiratory Disease Death Rate

Definition: *Age-standardized rate of death from respiratory disease per 100,000 population, for all respiratory disease (ICD-9 460-519), pneumonia and influenza (ICD-9 480-487), bronchitis/emphysema/asthma (ICD-9 490-493), and all other respiratory diseases (ICD-9 460-479, 488-489, 494-519).*

Measures long-term success in reducing deaths due to respiratory disease, compared with other regions, provinces, and countries. Lower death rates indicate success in respiratory disease prevention, detection, and treatment.

Source: Canadian Vital Statistics Database, Statistics Canada

1.21   Suicide Rate

Definition: *Age-standardized rate of suicide death (ICD-9 E950-E959) per 100,000 population.*

Measures long-term success in reducing suicide, a social as well as a major public health concern.

Source: Canadian Vital Statistics Database, Statistics Canada

1.22   Unintentional Injury Death Rate

Definition: *Age-standardized rate of death from unintentional injuries per 100,000 population. Unintentional ("accidental") injuries includes injuries due to causes such as motor vehicle collisions, falls, drowning, burns, and poisoning, but not medical misadventures/complications (ICD-9 E800-E929, excluding E870-E879).*

Measures long-term success in reducing deaths due to unintentional injuries, compared with other regions, provinces, and countries. Measures the adequacy and effectiveness of injury prevention efforts, including public education, community and road design, prevention, emergency care, and treatment resources.

Source: Canadian Vital Statistics Database, Statistics Canada

1.23   AIDS Death Rate

Definition: *Age-standardized rate of deaths due to AIDS and HIV infections (ICD-9 042-044) per 100,000 population.*

Measures success in preventing and treating AIDS and HIV (Human Immunodeficiency Virus, the agent that causes AIDS). Information on deaths can be used to estimate the number of persons living with HIV/AIDS, as well as the impact of treatment.

Source: Canadian Vital Statistics Database, Statistics Canada

2.0   Non-Medical Determinants of Health

Living and Working Conditions

2.1   High School Graduation

Definition: *Proportion of the population aged 25 to 29 who have a high school graduation certificate.*

A measure of educational attainment and socio-economic status.

Source: 1996 Census, Statistics Canada

2.2   Post-secondary Graduation

Definition: *Proportion of the population aged 25 to54 who have obtained a post-secondary certificate, diploma, or degree.*

A measure of educational attainment and socio-economic status.

Source: 1996 Census, Statistics Canada

2.3   Unemployment Rate

Definition: *Proportion of the labour force aged 15 or older who did not have a job during the reference period.*

A traditional measure of the economy. Unemployed people tend to experience more health problems.

Source: Labour Force Survey, Statistics Canada (special tabulations)

2.4   Long-term Unemployment

Definition: *Proportion of the labour force aged 15 or older who did not have a job any time during the current or previous year.*

Unemployed people tend to experience more health problems. Long-term unemployment could extend ones' susceptibility to poor health.

Source: 1996 Census, Statistics Canada

2.5   Youth Unemployment

Definition: *Proportion of the labour force aged 15 to 24 who did not have a job during the reference period.*

Measures success in the transition from school to work.

Source: Labour Force Survey, Statistics Canada (special tabulations)

2.6   Low Income Rate (1995 income)

Definition: *Proportion of persons in economic families and unattached individuals with incomes below the Statistics Canada low-income cut-off (LICO). The cut-offs represent levels of income where people spend disproportionate amounts of money for food, shelter, and clothing. LICOs are based on family size and degree of urbanization; cut-offs are updated to account for changes in the consumer price index. Data were not derived for economic families or unattached individuals in the Territories or on Indian Reserves.*

A widely used measure of socio-economic status. Higher income is associated with better health.

Source: 1996 Census, Statistics Canada

2.7   Children in Low-income Families (1995 income)

Definition: *Proportion of children under age 18 living in economic families with incomes below Statistics Canada's low-income cut-offs (LICO). Data were not derived for economic families or unattached individuals in the Territories or on Indian Reserves.*

A widely used measure of children at risk.

Source: 1996 Census, Statistics Canada

2.8   Average Personal Income (1995 income)

Definition: *Average personal income for persons aged 15 or older, from all sources.*

Higher income is associated with better health.

Source: 1996 Census, Statistics Canada

2.9   Housing Affordability (1995 income)

Definition: *Proportion of households (renters, owners, and total) spending 30% or more of total household income on shelter.*

As a general rule, households are considered to have affordability problems if more than 30% of household income is spent on housing costs. At that level of spending, it is likely that inadequate funds will be available for other necessities such as food, clothing, and transportation. Housing affordability problems affect renters more than owners.

Band housing on Indian reserves was not included in the calculation of housing affordability.

Source: 1996 Census, Statistics Canada

3.0   Health System Performance

Appropriateness

3.1   Vaginal Birth after Caesarean Section

Definition: *Proportion of women who have previously received a Caesarean section, who give birth via vaginal delivery in an acute care hospital.*

(ICD-9 or ICD-9-CM diagnosis code of 654.2).

There is considerable evidence that vaginal birth is safe for many women who have previously delivered by caesarean section. Women presenting with a history of a previous transverse low segment caesarean section, a single fetus in vertex presentation and no contraindications to a trial of labour should be offered the opportunity of vaginal delivery. (Clinical Practice Guidelines. Vaginal birth after previous caesarean birth. Society of Obstetrics and Gynecologists of Canada, 1997).

Source: Hospital Morbidity Database, CIHI

3.2   Caesarean Sections

Definition: *Proportion of women delivering babies in hospital by caesarean section. Due to characteristics of the database, stillbirths are excluded from the denominator.*

(CCP procedure code of 86.0-86.2, 86.8, or 86.9; ICD-9-CM procedure code of 74.0-74.2, 74.4 or 74.99).

Source: Hospital Morbidity Database, CIHI

Effectiveness

3.3 Pneumonia and Influenza Hospitalization Rate

Definition: *Age standardized acute care hospitalization rate for pneumonia and influenza, per 100,000 population age 65 and older.*

(Primary ICD-9 or ICD-9-CM diagnosis code of 480-487).

This indicator reflects the burden of illness due to pneumonia and influenza, a portion of which may be preventable through influenza and pneumococcal immunization programs. High rates of preventable pneumonia and influenza may suggest a problem with access to immunization.

Source: Hospital Morbidity Database, CIHI

3.4 Ambulatory Care Sensitive Conditions Rate

Definition: *Age standardized inpatient acute care hospitalization rate for conditions where appropriate ambulatory care prevents or reduces the need for admission to hospital.*

(Based on a list developed by Alberta Health – primary ICD-9 or ICD-9-CM diagnosis code of 250, 291-292, 300, 303-305, 311, 401-405, or 493).

While not all admissions for ambulatory care sensitive conditions are avoidable, it is assumed that appropriate prior ambulatory care could prevent the onset of this type of illness or condition, control an acute episodic illness or condition, or manage a chronic disease or condition. The "right" level of utilization is not known although a disproportionately high rate is presumed to reflect problems in obtaining access to primary care.

Source: Hospital Morbidity Database, CIHI

Efficiency

3.5   May not Require Hospitalization

Definition: *Percentage of patients hospitalized in acute care facilities for conditions or procedures that often allow ambulatory treatment not requiring admission. These hospitalizations are classified as May Not Require Hospitalization (MNRH) and are derived from the case mix group methodology.*

(May not require hospitalization CMGs: Lens insertion (055), other Ophthalmic procedures (057), other Ophthalmic procedures (063), Ethmoidectomy (088), Dental extraction/restoration (089), External & Middle ear procedures (090), Nasal procedures (091), Myringotomy (092), Tonsillectomy and Adenoidectomy procedures (093), Sinusitis (113), Sore throat (114), Miscellaneous ENT diagnosis (115), Croup (116), Atherosclerosis (229), Acquired valvilar disorders (232), Hypertension (233), Congenital cardiac disorders (234), Anus & Stomal procedures (266), Unilateral hernia procedures (271), Soft tissue procedures (378), Other Musculoskletal procedures (379),Other Lower extremity procedures (380), Hand & wrist procedures (381), Arthroscopy (382), Back Pain (409), Soign Symptoms & deformities (411), Joint Derangement (413), Sprains, Strains & minor injuries (414), Other Transurethral or biopsy procedures (512), Miscellaneous urinary tract procedures (514), Miscellaneous Urological diagnosis (534), Hematuria (535), Urinary Obstruction (536), Admission for dialysis (538), Miscellaneous male reproductive system procedures (554), Circumcision (555), Miscellaneous male reproductive system diagnosis (563), Gynecological Laproscopy (585), Tubal Interruption (586), Miscellaneous Gynecological procedures (587), Miscellaneous Gynecological procedures (596), False labour LOS <3 days (619), Anxiety disorders (791), Adjustment disorders (792), Personality disorder with Axis III diagnosis (793), Personality disorder without Axis III diagnosis (794), Sexual dysfunction & Sexual disorders (795), Specific development disorders (796), Miscellaneous Psychiatric diagnosis (797), Procedure cancelled (852), Vein ligation & stripping (893), Unrelated O.R procedure (906), Obsolete psychiatric diagnosis (909)).

MNRH analyses may prompt review of inpatient cases to identify opportunities for providing such care in ambulatory settings. Case mix groups associated with MNRH do not suggest that a patient must be treated as ambulatory, as these patients may have a justifiable basis for inpatient admission.

Source: Discharge Abstract Database, CIHI

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3.6   Percent Alternate Level of Care Days

Definition: *Percentage of inpatient days where a physician (or designated other) has indicated that a patient occupying an acute care hospital bed was well enough to have been cared for elsewhere.*

This indicator is designed to assess the processes that ensure the placement of patients in the most appropriate care setting. It identifies the proportion of patients who are occupying acute care beds due to the unavailability of services in another more appropriate setting.

Source: Discharge Abstract Database, CIHI

3.7   Expected Compared to Actual Stay

Definition: *The average number of actual days in acute care hospitals compared to expected length of stay.*

Expected length of stay (ELOS) is calculated on typical patients taking into account the reason for hospitalization, age, comorbidity, and complications. Typical cases exclude deaths, transfers, voluntary sign-outs, and cases where the actual length of stay is greater than the "trim point" established by CIHI. The calculation uses the Case Mix Group (CMG) methodology and calibration for the given year (i.e., 1998/99 data uses CMG 1999 methodology). A positive ratio indicates actual days stay was longer than expected while a negative value suggests the average actual stay was shorter than expected.

Source: Discharge Abstract Database, CIHI

Safety

3.8   Hip Fracture Hospitalization Rate

Definition: *Age standardized acute care hospitalization rate for fracture of the hip, per 100,000 population age 65 and older.*

(Primary ICD-9 or ICD-9-CM diagnosis code of 820.0-820.3, 820.8, 820.9).

Hip fractures occur for various reasons including environmental hazards, the prescription of potentially inappropriate psychotropic medications to the ambulatory elderly, and safety issues in long-term care facilities. As well as causing disability or death, hip fractures can have a major impact on independence and quality of life. This measure is based on the number of cases admitted to hospital, not the number of unique individuals. Some cases may represent readmissions for additional treatments or transfers from one medical setting to another. Thus, the hospitalization rate may over-estimate the incidence of hip fractures.

Source: Hospital Morbidity Database, CIHI

4.0   Community and Health System Characteristics

4.1   Population (1996 and 1997)

Definition: *The number of people living in a geographic area by sex*.

A population's size and age/sex composition impact the health status of a region and its need for health services. Population data also provide the "denominators" used to calculate rates for most health and social indicators.

Source: Demography Division, Statistics Canada. Data are derived from the Census and administrative sources on births, deaths, and migration. Population data for Quebec and British Columbia were supplied by the Institut de la statistique du Québec and BC Stats respectively.

4.2   Proportion Population 65 Years or Older

Definition: *The proportion of people aged 65 years or older living in a geographic area, by sex*.

Canadians aged 65 or older are specifically noted, because of their growing proportion of the population and their greater health care needs.

Source: Demography Division, Statistics Canada. Data are derived from the Census and administrative sources on births, deaths, and migration. Population data for Quebec and British Columbia were supplied by the Institut de la statistique du Québec and BC Stats respectively.

4.3   Proportion Urban Population

Definition: *The proportion of population in a geographic area living in urban areas having minimum population of 1,000 and a population density of 400 people per square kilometre*.

This community characteristic allows users to compare regions with similar proportions of urban/rural population.

Source: Derived from 1996 Census, Statistics Canada.

4.4 Proportion Aboriginal Population

Definition: *The proportion of Aboriginal people in a geographic area.*

Health status characteristics and non-medical determinants of Aboriginal people differ from the non-Aboriginal population, for example, infant mortality, unintentional injury deaths, suicides and smoking rates. Knowing the proportion of Aboriginal people in a geographic area provides context to better interpret health indicators.

Source: 1996 Census, 1996 Census Coverage Studies, and Population Estimates from Demography Division, Statistics Canada.

4.5 Proportion Immigrant Population

Definition: *The proportion of immigrants in a geographic area, and the proportion of those immigrants who came to Canada from 1981 to 1996.*

Canadian, American and Australian studies have shown that immigrants, particularly non-European immigrants, generally have a longer life expectancy and lower risk of certain chronic conditions than the native-born population. However, the Canadian studies have also shown that as the immigrants' period of residence in Canada increases, so does the prevalence of chronic conditions, smoking and disability. Understanding the proportion of immigrants in a geographic area, along with the period of immigration, provides a context for interpreting health indicators.

Source: 1996 Census, Statistics Canada.

4.6 Doctors (General/Family Practitioners and Specialists)

Definition: *Active civilian general practitioners or family practitioners per 100,000 population on December 31st of the reference year; Active civilian medical specialists per 100,000 population on December 31st of the reference year.*

Physician to population ratios are used to support health human resource planning. Physician density ratios do not take into account workload or type of services provided. In some regions, health facilities and personnel provide services to a larger community than the residents of the immediate region. In others, residents may seek care from physicians and Specialists outside the region where they live. The ratio of physicians to population reflects the number of doctors in a region and has not been adjusted to take these movements into account. The extent to which this affects individual regions is likely to vary.

Source: Southam Medical Database, CIHI

4.7   Coronary Artery Bypass Graft Surgery Rate

Definition: *Age standardized rate of coronary artery bypass graft (CABG) surgery performed on inpatients in acute care hospitals per 100,000 population age 20 and older.*

(CCP code 48.1 or ICD-9-CM procedure code 36.1).

As with other types of procedures, variations in CABG surgery rates can be attributed to numerous factors, including differences in population demographics, physician practice patterns, availability of services, and prevalence of cardiovascular disease. In Ontario, the provincial benchmark for CABG surgery is 100 per 100,000 population (Cardiovascular Health and Services in Ontario. ICES, 1999).

Source: Hospital Morbidity Database, CIHI

4.8   Hip Replacement Surgery Rate

Definition: *Age standardized rate of total hip replacement surgery (unilateral or bilateral) performed on inpatients in acute care hospitals per 100,000 population.*

(CCP code of 93.51 or 93.59 or ICD-9-CM procedure code of 81.51or 81.53).

Hip replacement surgery has the potential to result in considerable improvement in functional status, pain relief, as well as other gains in health-related quality of life. Over the past two decades, rates of surgery have increased substantially. Wide inter-regional variation in the hip replacement rate may be attributable to numerous factors including the availability of services, provider practice patterns, and patient preferences.

Source: Hospital Morbidity Database, CIHI

4.9   Knee Replacement Surgery Rate

Definition: *Age standardized rate of total knee replacement surgery (unilateral or bilateral) performed on inpatients in acute care hospitals per 100,000 population.*

(CCP code of 93.41 or ICD-9-CM procedure code of 81.54or 81.55).

Knee replacement surgery has the potential to result in considerable improvement in functional status, pain relief, as well as other gains in health-related quality of life. Over the past two decades, rates of surgery have increased substantially. Wide inter-regional variation in the knee replacement rate may be attributable to numerous factors including the availability of services, provider practice patterns, and patient preferences.

Source: Hospital Morbidity Database, CIHI

4.10   Hysterectomy Rate

Definition: *Age standardized rate for hysterectomies provided to inpatients in acute care hospitals, per 100,000 women age 20 and older.*

(CCP code of 80.2-80.7 or ICD-9-CM procedure code of 68.3-68.9).

Utilization rates may reflect the level of uncertainty about the appropriate use of this surgical procedure. The "right" level of utilization is not known. In Canada, inter-regional hysterectomy rates vary two to three-fold.

Source: Hospital Morbidity Database, CIHI