



Population Health Intelligence for Public Health and Health System Planning and Innovation:

Perspectives from the Canadian
Population Health Initiative of CIHI

Cory Neudorf, B.Sc., M.D., M.H.Sc., FRCPC
Chief Medical Health Officer,
Saskatoon Health Region



Canadian Institute for Health Information (CIHI)

Who We Are

- Established in 1994, CIHI is an independent, not-for-profit corporation that provides essential information on Canada's health system and the health of Canadians. Funded by federal, provincial and territorial governments, we are guided by a board of directors made up of health leaders across the country.

Our Vision

- To help improve Canada's health system and the well-being of Canadians by being a leading source of unbiased, credible and comparable information that will enable health leaders to make better-informed decisions.

The Canadian Population Health Initiative of CIHI

- CPHI's mission is twofold:
 - To foster a better understanding of factors that affect the health of individuals and communities; and
 - To contribute to the development of policies that reduce inequities and improve the health and well-being of Canadians.

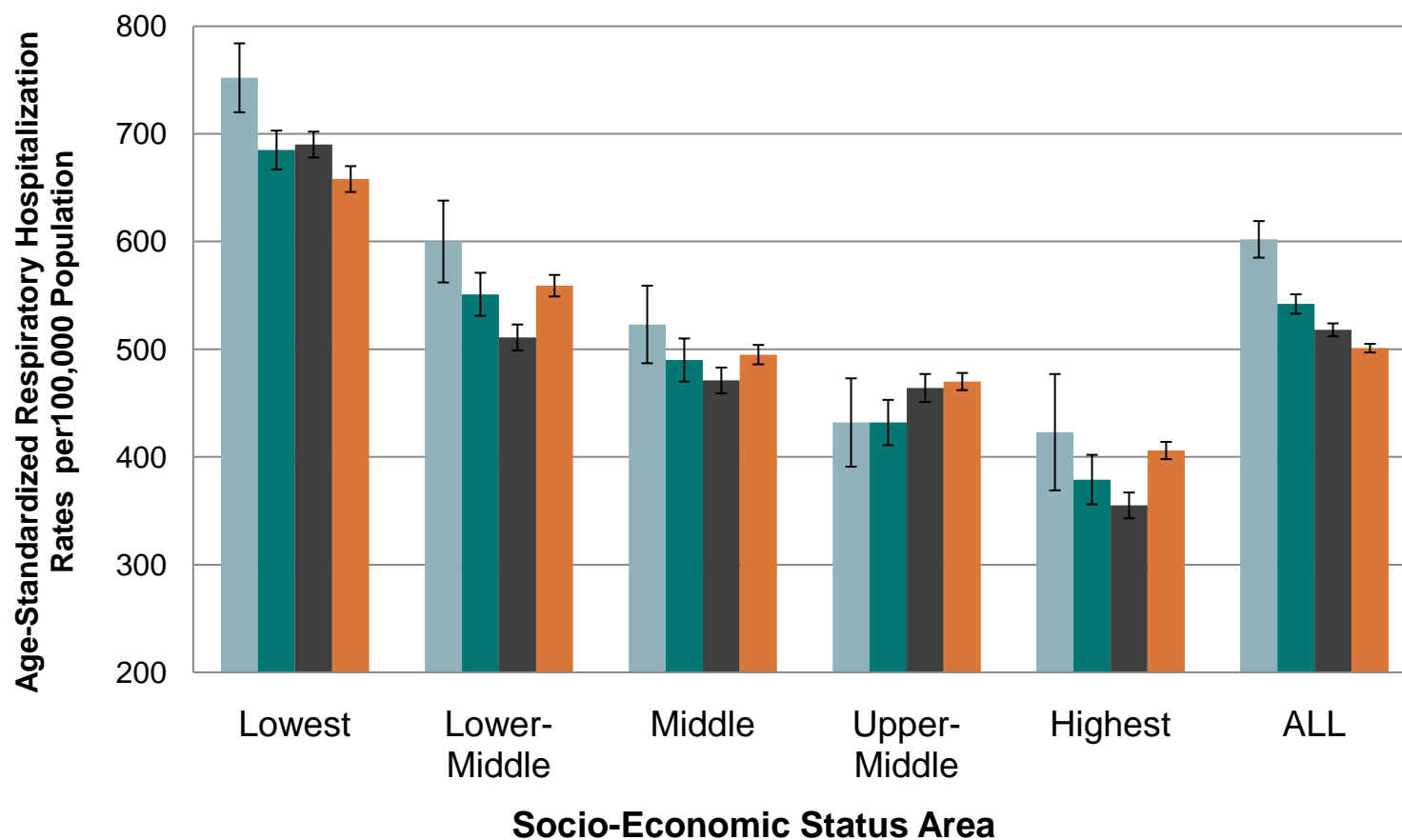
Recently released CPHI Reports (Research, Analysis and Knowledge Support)

- **Urban Physical Environments and Health Inequalities (2011)**
 - explores two aspects of the urban physical environment known to negatively affect health: outdoor air pollution and heat extremes
 - found that those who are already more vulnerable to poor health may be at increased risk of being exposed to the effects of air pollution and heat extremes because of the areas in which they live.
- **Analysis in Brief: Hospitalization Disparities by Socio-Economic Status for Males and Females (2010)**
 - examines the size and cost of disparities by socio-economic status and sex in hospitalization rates for ambulatory care sensitive conditions and mental illness (conditions for which hospitalization could potentially be avoided with adequate primary health care)

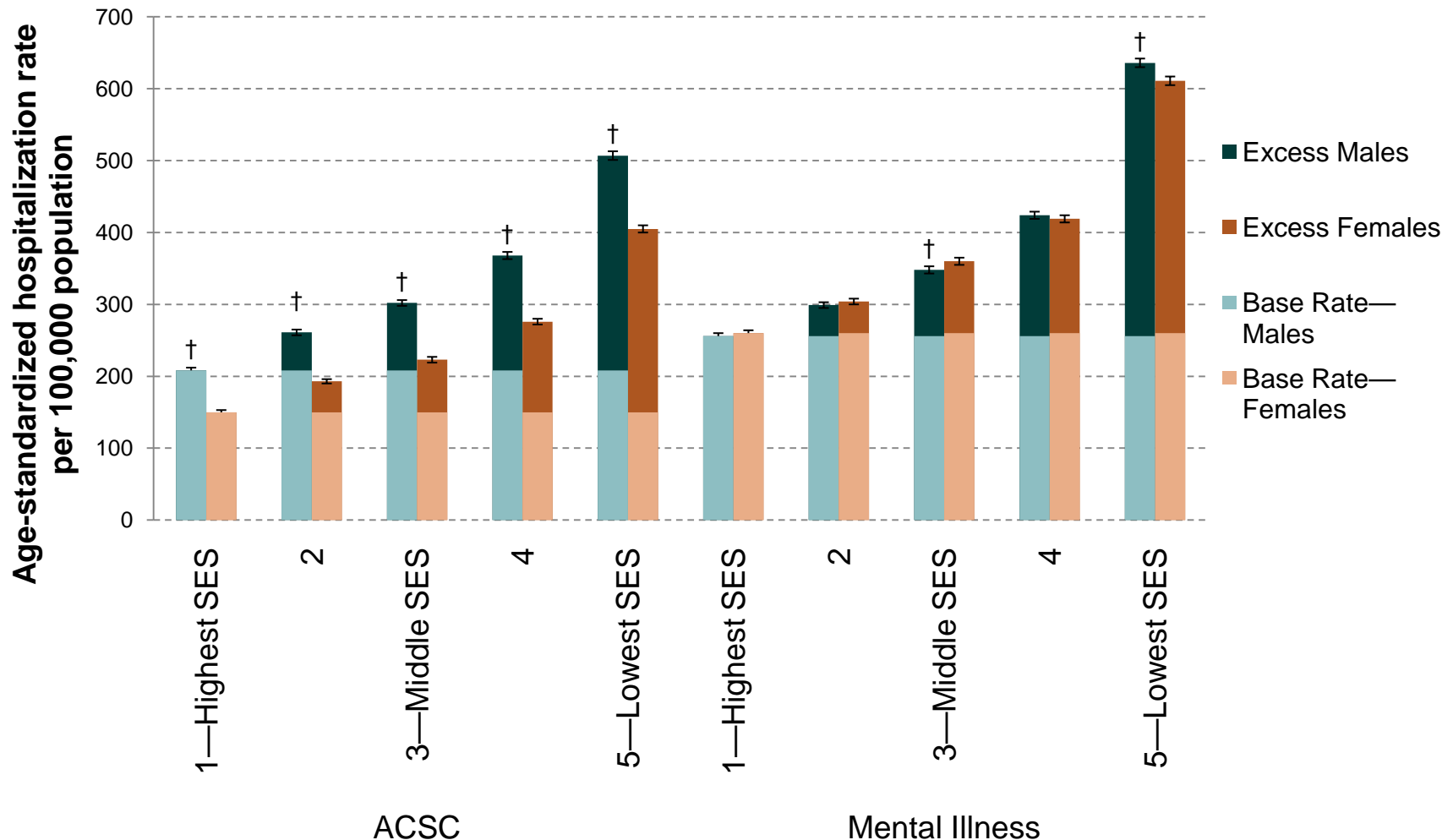
Residential proximity to a source of pollution is not as strong an influence on hospitalizations for circulatory and respiratory diseases as socio-economic status.



Age-Standardized Rates of Hospitalization for Respiratory Diseases by Residential Proximity to Pollutants and Socio-Economic Status



For ACSC and mental illness total excess hospitalization rates are higher for males than females



Recently released CPHI Reports (Policy Analysis and Decision Support)

- **Population Health Intervention Research Casebook**
(2011, in partnership with CIHR's IPPH)
 - describes research related to healthy weights and mental health exploring what works and what does not work about program and policy interventions to address health equity issues at a population level
- **Recognizing and Exploring Positive Mental Health—
Policy Dialogue: Synthesis and Analysis** (2011)
 - consolidates information and ideas shared by decision makers, program planners and community leaders who participated in a facilitated dialogue around the concept of positive mental health and wellness

Reducing Gaps in Health: A Focus on Socio-Economic Status in Urban Canada (2009)



Canadian Institute
for Health Information
Institut canadien
d'information sur la santé

Reducing Gaps in Health A Focus on Socio-Economic Status in Urban Canada

Canadian Population Health Initiative • Canadian Institute for Health Information

Rationale

- Research shows that significant gaps exist in the economic well-being and overall health of Canadians.
- A number of studies have examined socio-economic status (SES), not as a division of poverty versus affluence, but as a gradient with intermediate points in between. That is, "an individual situated at any point on an income scale is likely to be less healthy than any of those above and more healthy than any of those below that particular point."¹
- Deprivation measures, such as the Deprivation Index developed by the Institut national de santé publique du Québec, identify those who experience both material and social disadvantage compared to others in their community. Material disadvantage reflects income, education and employment, while social disadvantage refers to single-parent families, persons living alone and the proportion of persons separated, divorced or widowed.¹

Objective

- To provide a broad overview of the links between SES and health by examining how health, as measured by a variety of indicators, varies in small geographical areas (with different socio-economic characteristics) in 15 of Canada's census metropolitan areas (CMAs).

Methods

- Urban populations were geographically defined using Statistics Canada's dissemination areas (DAs), as defined in the 2006 census.
- DAs in each of the 15 CMAs were classified as either urban or rural. Those that were identified as rural were excluded from subsequent analyses. (See Figure 1 for the geographical location of the 15 CMAs.)
- 21 health-related indicators were examined, including hospitalization rates for a number of medical conditions (extracted from CPHI's Discharge Abstract Database and National Trauma Registry) and self-reported health percentages (extracted from a subset of Statistics Canada's Canadian Community Health Survey, cycles 2.1 and 3.1 combined).
- Using the Deprivation Index for health in Canada, DAs within each of the 15 CMAs were classified into one of three SES groups: low SES, average SES and high SES. (See Figure 2 for a sample DA boundary map.)
- Age-standardized hospitalization rates and self-reported health percentages were calculated within each of those three SES groups across the 15 CMAs, in addition to a pan-Canadian value for all 15 CMAs examined in the study.



Geographical Location
of the 15 Canadian CMAs



DA Boundary Map for the Hamilton CMA, Ontario

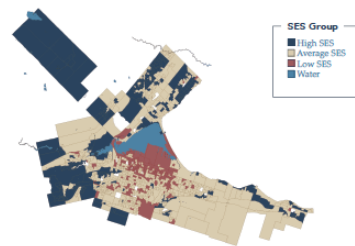
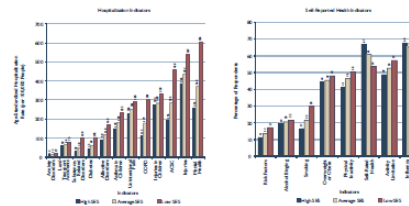


Figure 1

Pan-Canadian Age-Standardized Hospitalization Rates
and Self-Reported Health Percentages Across All 15 CMAs*

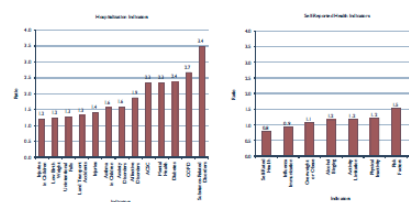


Note:
* Excludes the low birth weight indicator (this indicator is not age-standardized and measurement is per 100 live births, not per 100,000 people).

Source:
CPHI analysis of 2003–2004 to 2006–2006 Discharge Abstract Database and National Trauma Registry data, Canadian Institute for Health Information; and Canadian Community Health Survey, cycles 2.1 (2003) and 3.1 (2005), Statistics Canada.

Figure 2

Pan-Canadian Ratios of Age-Standardized Hospitalization Rates and Self-Reported Health Percentages Between Low- and High-Socio-Economic Status Groups



Source:
CPHI analysis of 2003–2004 to 2006–2006 Discharge Abstract Database and National Trauma Registry data, Canadian Institute for Health Information; and Canadian Community Health Survey, cycles 2.1 (2003) and 3.1 (2005), Statistics Canada.

Figure 3

Results

- Age-standardized hospitalization rates and self-reported health percentages were generally higher for the low-SES group than for the average-SES group, and were generally higher among the average group than for the highest-SES group, with the steepness of the gradient varying among indicators.

Conclusion/Significance

- Supporting previous research that studied the links between SES and health at different levels of geography, the new CPHI analyses of 15 Canadian CMAs emphasize the complex relationship that exists between SES and the indicators examined.
- Results such as these point to the value of examining gaps in health across all SES levels, rather than focusing exclusively on the division of high- versus low-SES groups.

About the Canadian

Population Health Initiative
The Canadian Population Health Initiative (CPHI), a part of the Canadian Institute for Health Information (CIHI), was created in 1999. CPHI's mission is twofold:

- To foster a better understanding of factors that affect the health of individuals and communities; and
- To contribute to the development of policies that reduce inequities and improve the health and well-being of Canadians.

Acknowledgements

We would like to acknowledge our partners in this project: Institut national de santé publique du Québec, Statistics Canada and the Urban Public Health Network.

References

1. Direction de la santé publique: Régie régionale de la santé et des services sociaux de Montréal-Centre, 1998 Annual Report on the Health of the Population—Social Inequalities in Health (Montréal, Qué.: Direction de la santé publique: Régie régionale de la santé et des services sociaux de Montréal-Centre, 1998), p. 13.
2. R. Pampaloni and G. Raymond, "A Deprivation Index for Health and Welfare Planning in Québec," *Chronic Diseases in Canada* 21, 3 (2000): pp. 104–113.

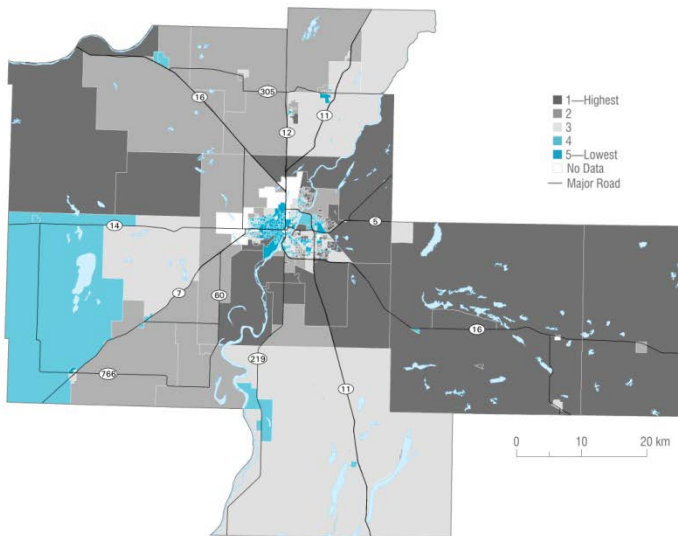


Data Briefs (33 CMAs): Exploring Urban Environments and Inequalities in Health

Exploring Urban Environments and Inequalities in Health

Saskatoon Census Metropolitan Area

Distribution of Socio-Economic Status in the Saskatoon CMA—
Combined (Material and Social) Components of the INSPQ
Deprivation Index at the Dissemination Area Level



Age-Standardized Hospitalization Rates by Socio-Economic Status Group for the Saskatoon CMA

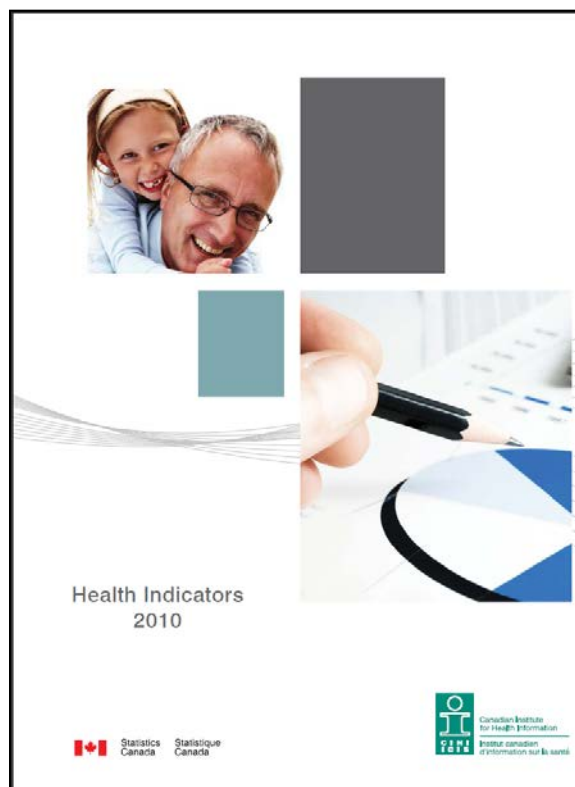
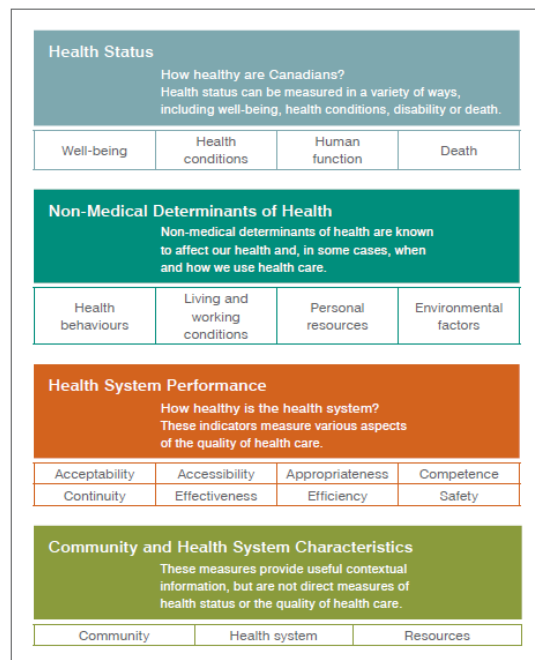


CIHI Indicators

2010: Measuring Disparities in the Health System

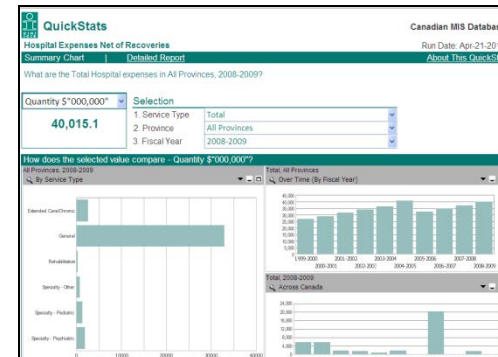


Health Indicator Framework



Health Indicators 2010

Map Code	Health Region	Age-Standardized Rate per 100,000	95% CI	Age-Standardized Rate per 100,000	95% CI
Nonfatal Acute Myocardial Infarction Event 2008-2009					
0001	Newfoundland and Labrador	*147	(130-163)	*151	(140-162)
1011	Eastern	*146	(135-156)	*156	(141-170)
1012	Central	*113	(104-121)	138	(126-150)
1013	Western	*267	(232-302)	142	(117-168)
Stroke Event 2008-2009					
0001	Prince Edward Island	*294	(266-322)	141	(122-159)
1011	South Shore	*264	(243-284)	122	(110-134)
1012	South West Nova	*329	(301-357)	125	(109-140)
1013	Antigonish Valley	*212	(271-258)	*187	(155-188)
1014	Goldenshoe East Hants	*271	(237-305)	114	(92-137)
1015	Capitol	*357	(315-400)	143	(117-170)
1016	Capital	*139	(120-158)	120	(102-138)
1017	Capital	*180	(165-193)	*106	(95-116)
1018	New Brunswick	*269	(257-281)	*138	(130-147)
1019	Zone 1 (Moncton area)	*283	(240-326)	129	(113-144)
1020	Zone 2 (Saint John area)	*281	(237-326)	133	(116-150)
1021	Zone 3 (Fredericton area)	*216	(200-232)	136	(116-154)
1022	Zone 4 (Edmundston area)	*218	(177-258)	149	(116-182)
1023	Zone 5 (Bathurst area)	*215	(184-247)	138	(113-163)
Quebec					
2001	Bas-Saint-Laurent	*221	(210-232)	-	-
2002	Saguenay-Lac-Saint-Jean	*218	(221-257)	-	-
2003	Capitale-Nationale	*208	(191-224)	-	-
2004	Mauricie et Centre-du-Québec	*259	(243-273)	-	-
2005	Estrie	*276	(254-298)	-	-
2006	Montreal	*197	(190-203)	-	-
2007	Outaouais	*229	(212-247)	-	-
2008	Abitibi-Témiscamingue	*293	(264-322)	-	-
2009	Côte-Nord	*266	(231-301)	-	-
2010	Gaspésie-Îles-de-la-Madeleine	*317	(281-353)	-	-
2011	Chaudière-Appalaches	*160	(178-205)	-	-
2012	Laval	*179	(165-193)	-	-
2013	La Nouvelle-Écosse	*288	(272-303)	-	-
2014	La Nouvelle-Écosse	*204	(190-217)	-	-
2015	Montérégie	*126	(114-138)	-	-



Determinants of Mental Health and Resilience Report Series

- CPHI reports:
 - Homelessness – 2008
 - Delinquency & Criminal Activity – 2008
 - Exploring Positive Mental Health -2009
- Commissioned papers:
 - Mentally Health Communities – 2008
 - Mentally Health Communities-Aboriginal Perspective – 2009

CPHI Education Activities

- Applying a Population Health Perspective to Health Planning and Decision Making Workshop
 - For local health system managers and front-line planners
 - Over a thousand participants in the full day in person workshops, and at abbreviated sessions (e.g. CPHA)
 - Similar content available as an e-learning module for self-study
- E-learning modules
 - Promoting Healthy Weight
 - Improving the Health of Young Canadians
 - Mental Health and Homelessness in Canada
 - Linking Mental Health, Delinquency and Criminal Activity
 - Exploring Positive Mental Health in Canada
 - Identifying and Acting on Inequities in Health (*in development*)

Webex Seminars

- Archived audio and powerpoint materials from online discussion forums and panel presentations:
 - Casebook for Population Health Intervention Research
 - Competencies for Population Health Intervention Research
 - Reducing Gaps in Health
 - Exploring Positive Mental Health
 - Mental Health, Delinquency and Criminal Activity

Upcoming Work by CPHI

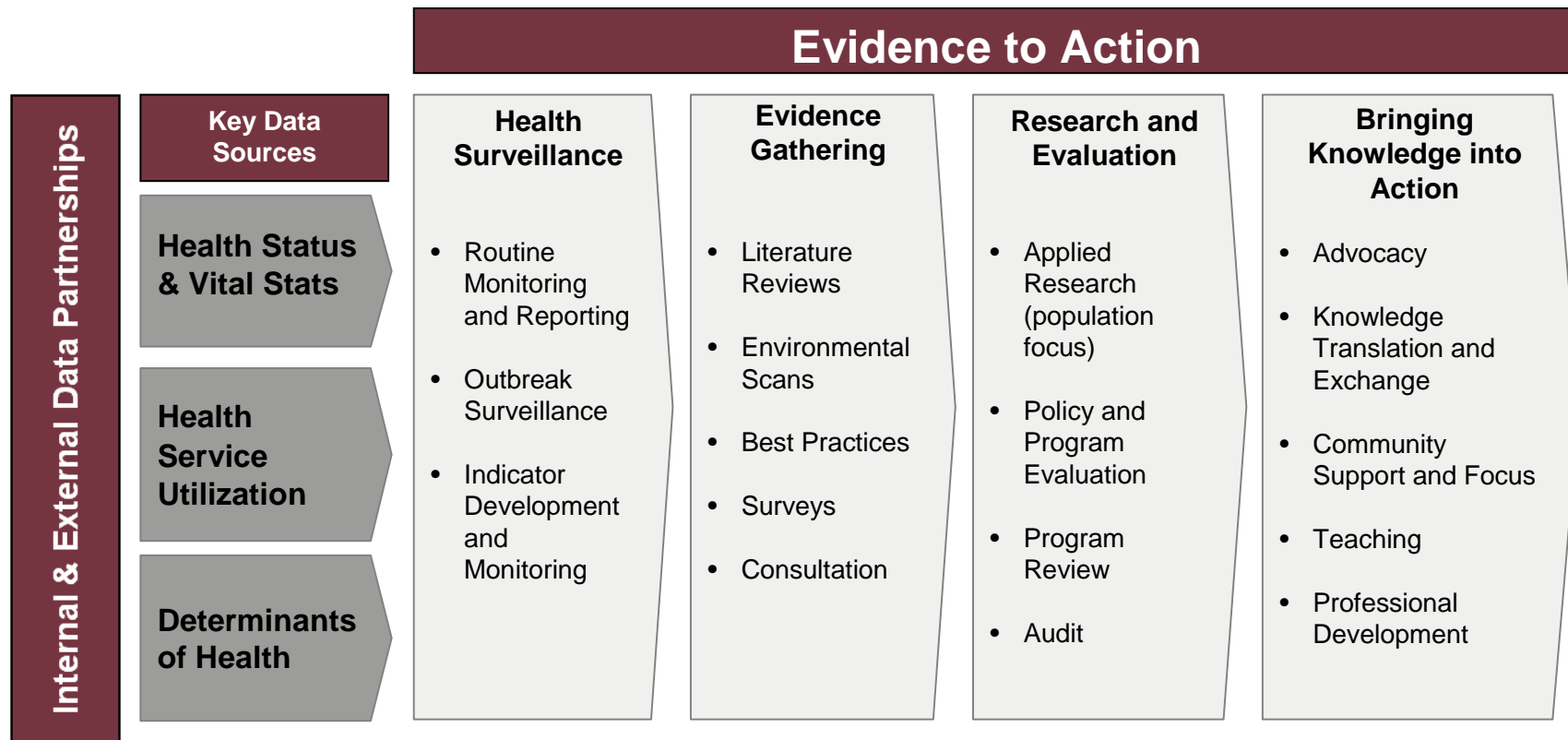
- Upcoming reports
 - Obesity in Canada (joint report with PHAC)
 - Urban Physical Environments Policy Review and Synthesis Product
 - Cardiovascular healthcare for First Nations, Inuit and Métis Populations
 - Analysis in Brief: Disparities in Primary Health Care and Ambulatory Care Sensitive Conditions
 - Health System Efficiency in Canada
- Population Health Infostructure Project (feasibility study)
- Advanced Education Workshops (under consideration):
 - Accessing and Utilizing Population Health Data and Information
 - Identifying and Assessing Interventions for Population Health

Planning process currently underway at CIHI

- CIHI Board of Directors are meeting in June for a strategic planning session (including mandate, scope, vision, values) and charting the course for the next 5 years.

Regional Use of Data for Planning and Innovation

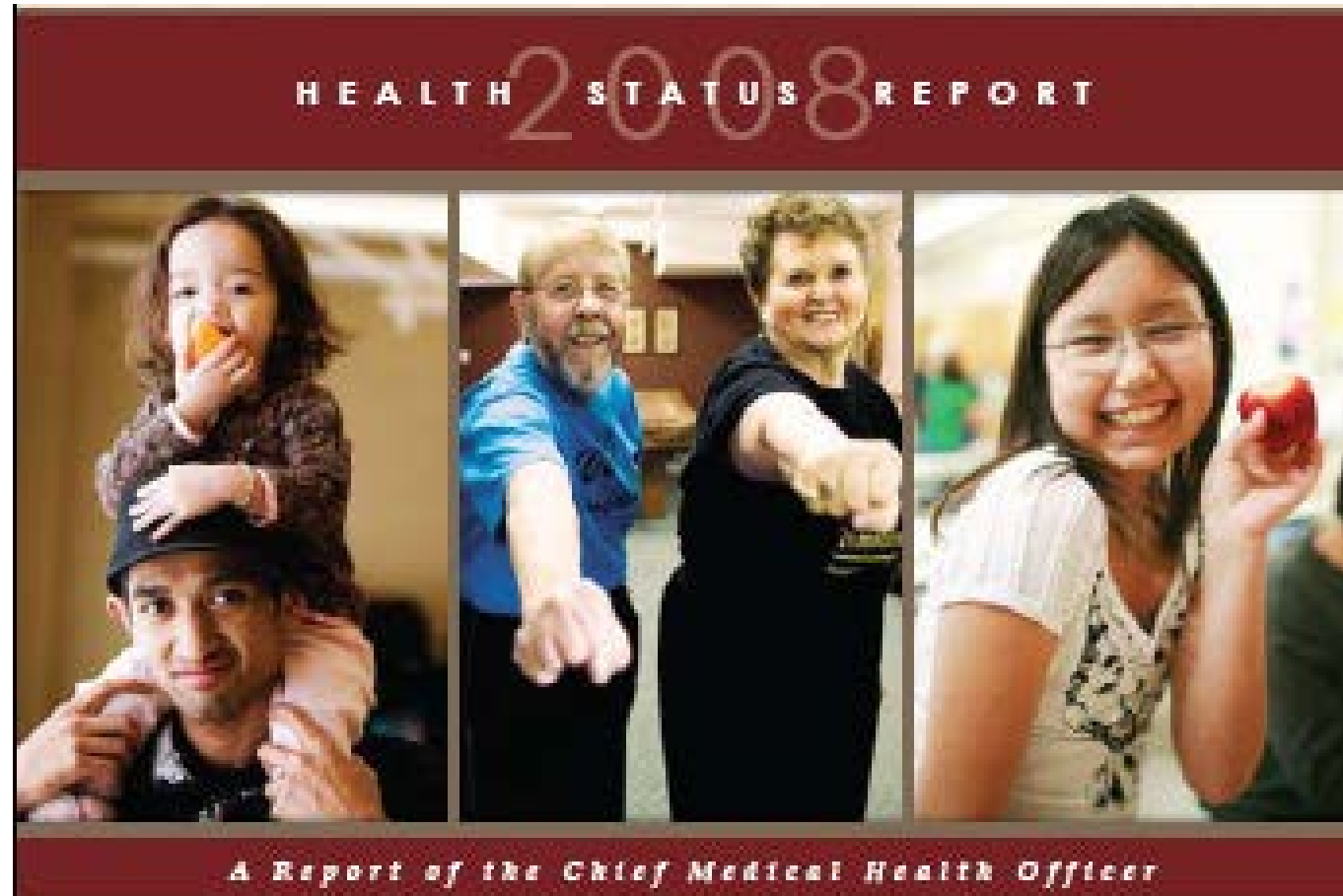
- Local / regional investment in infrastructure and capacity required to make best use of population health data for health system planning.
- Population health data should be used for both public health and preventive services planning as well as overall health system planning and quality improvement.
- E.g. Health Status reports, Data Portals, Surveillance and Research, Health Equity reports and equity audits,



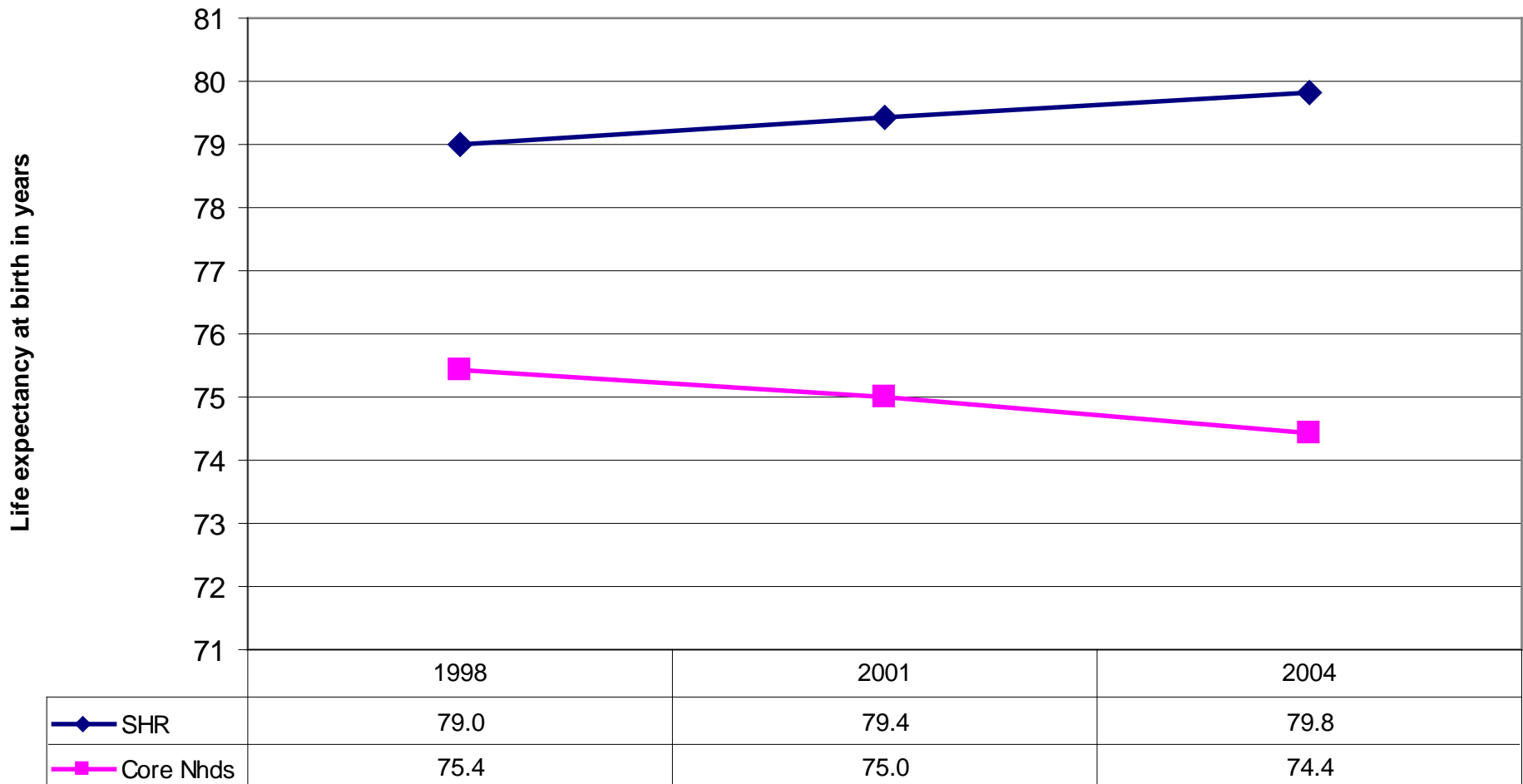
Partnerships for Action

In partnership, we aim to improve health and reduce health inequity through surveillance, research, and knowledge transfer and exchange to inform decision-making, policy, and service delivery.

Reports for Health Planning



Life expectancy at birth, SHR and core neighbourhood residents, 1998 - 2004



Health Status Reports



- Required by provincial government for RHA planning
- Include key health status indicators and conditions that influence health
- Analysis and commentary in the areas of demographics, reproductive and infant health, morbidity and mortality, communicable disease, social environment, physical environment, health behaviours
- Includes CMHO recommendations for SHR, partners and province

Data portals

- CommunityView
 - The Comprehensive Community Information System for Saskatoon



[Home](#)

[The Catalogue](#)

[Hot Topics](#)

[Our Partners](#)

[Collaboration](#)

[About Us](#)

[Our Tools](#)

[Our Data](#)



Data and Documents

Find, map and chart the data you need!

[click here](#) »



Hot Topics

A compilation of prepared data, maps, charts and documents for issues of importance in our community.

[click here](#) »



Learn more

Information about the CommunityView Collaboration.

[click here](#) »



Welcome to the CommunityView Collaboration

Our goal is to provide you with relevant, reliable, local information and evidence to inform your planning, decision-making, and policy for Saskatoon and surrounding area.

We bring together data from different human service sectors and community based organizations, and the many resources, projects, initiatives and research that are contributing to the well-being of Saskatoon.

Ultimately, through community collaboration, we are *Building Evidence for Action!*



Latest news



27.05.2010

New Resources and Hot Topics

Check out the new Immunization Hot Topic - a prepared information package regarding immunization in Saskatoon.

[view hot topics](#) ➡

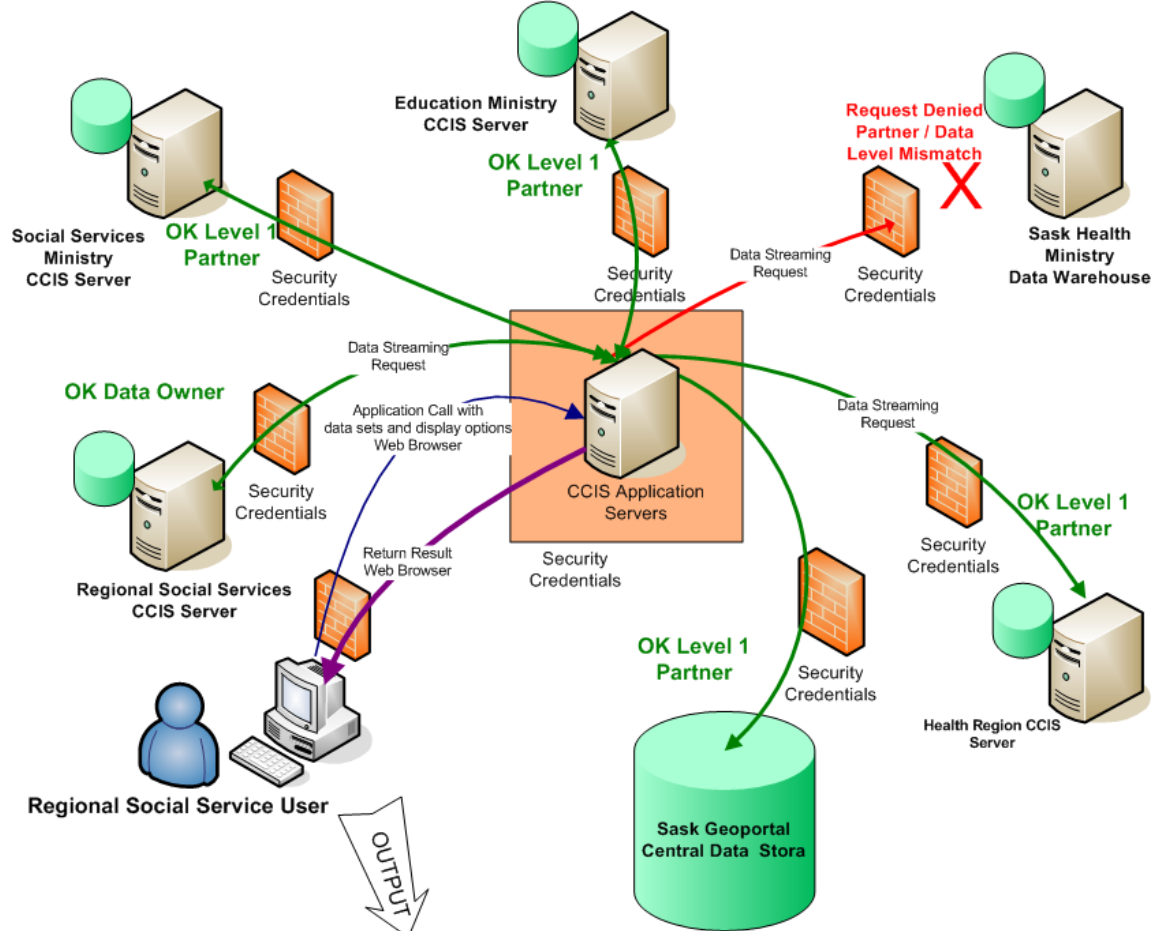


27.05.2010

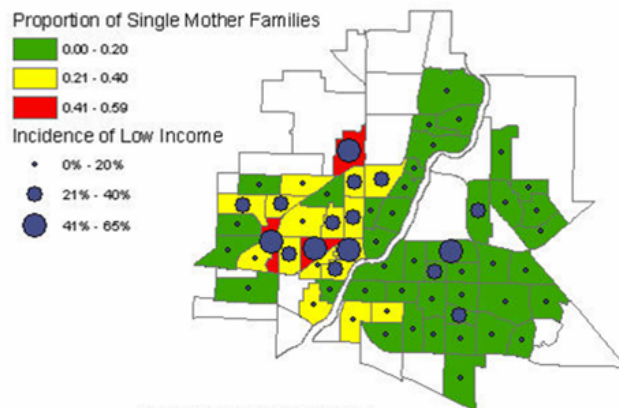
Survey

Details about the survey can be placed here.

[take the survey](#) ➡

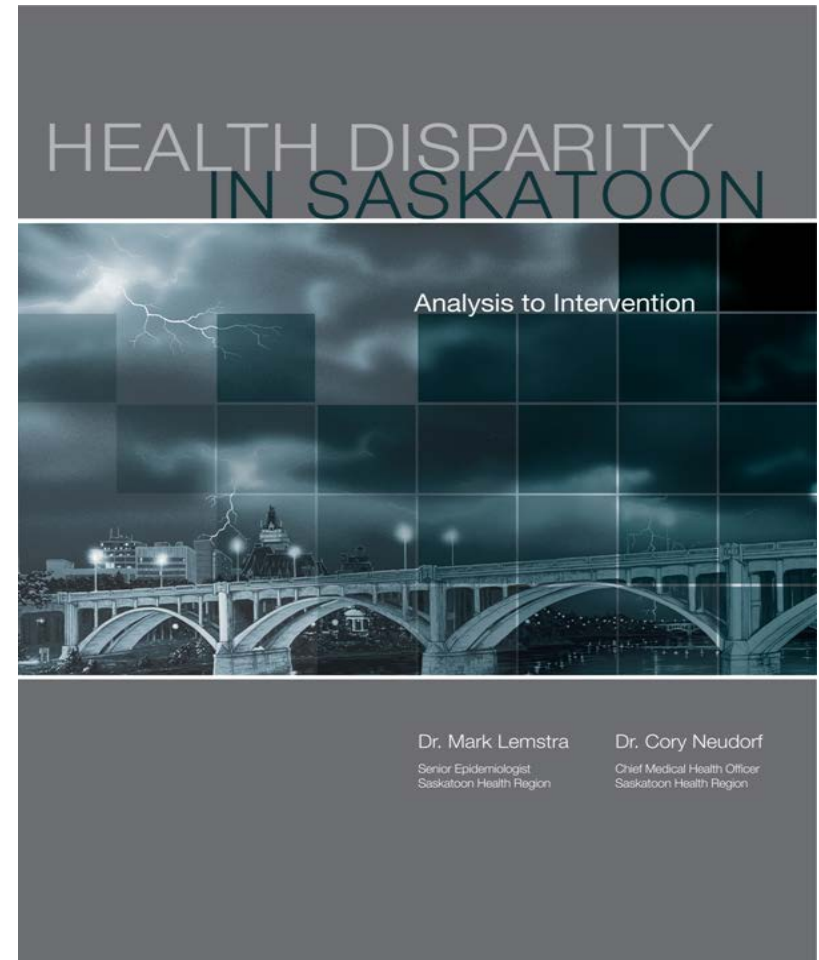


Poverty, Single Mother Families - Saskatoon, 2001



Surveillance and Research

- Health Disparities Analysis, Research, and Interventions
- Supported by Regional Intersectoral Committee
- Includes scoping of issue, comparisons with other cities, analysis of underlying causes, and a review of evidence-based policy options to adopt
- Poverty Reduction Action Plan – summer 2011



A Population Health approach for the rest of the health system

- Health Care equity audits
 - In public health
 - progress to date from immunization initiatives
 - In a medical area
 - Data from diabetes audit, and plans for interventions with specialists, primary care, CDM&P, public health
 - In a surgical area
 - Data from surgical audit and plans for further analysis and intervention

Health Care Equity audit: Immunisation

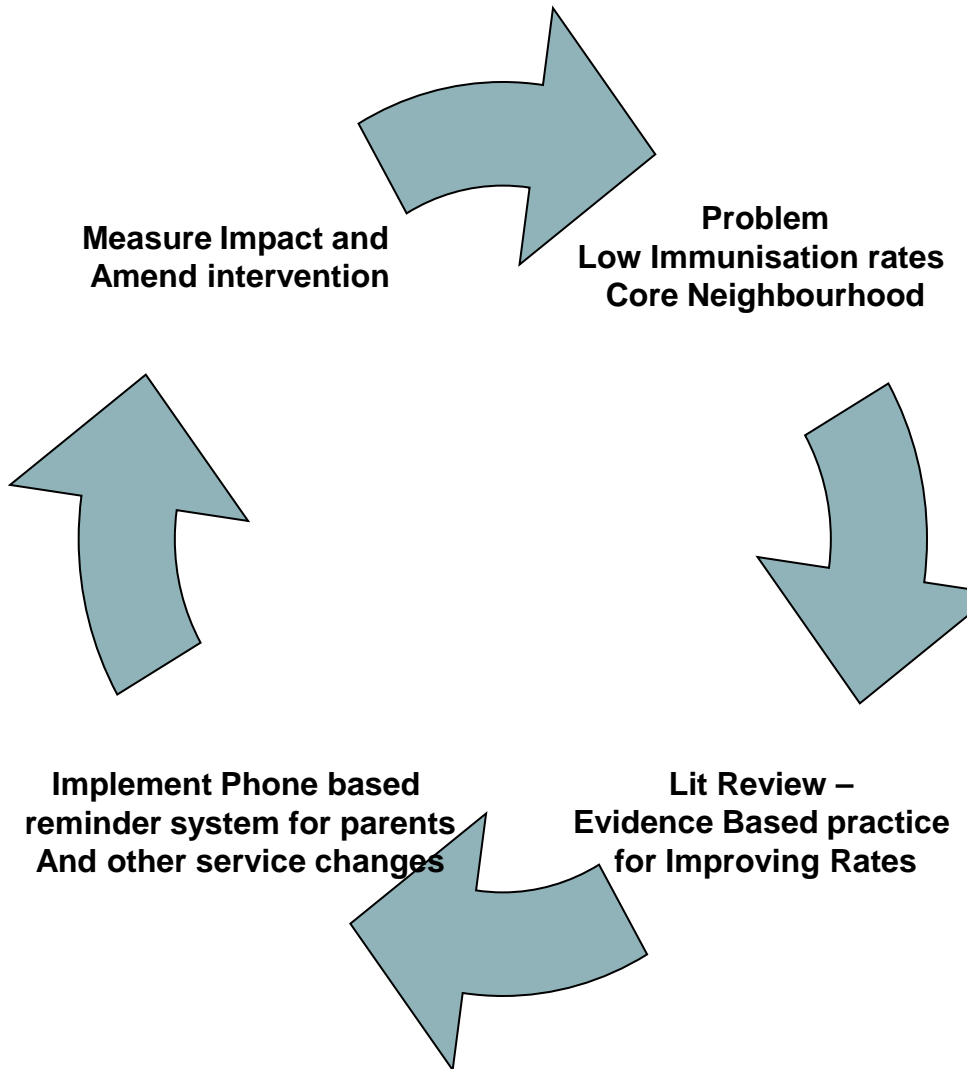
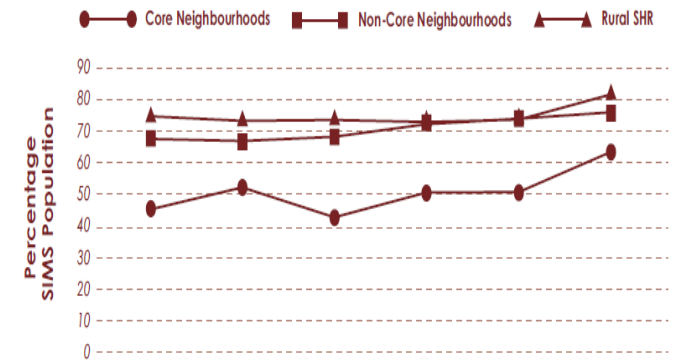


Figure 4.3: Two Year Old Coverage Rate for Rubella and Measles (Two Doses), Saskatoon Health Region, 2003-2008

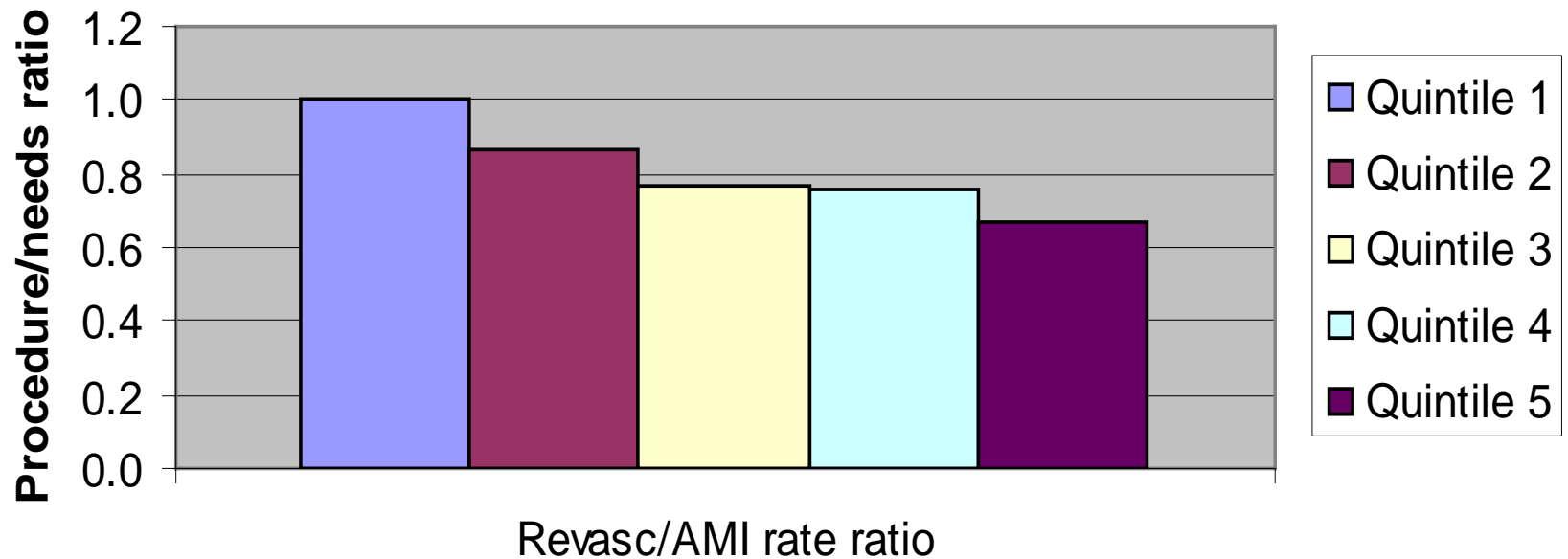


	2003	2004	2005	2006	2007	2008
Core Neighbourhoods	45.4	52.3	42.9	50.7	50.9	63.5
Non-Core Neighbourhoods	67.6	66.9	68.3	72.2	74.0	76.0
Rural SHR	74.7	73.3	73.5	72.9	73.7	81.6

Source: Saskatchewan Immunization Management System

Health Care Equity Audit: Surgery

Procedure needs ratio(Cardiac revasc./AMI) by deprivation quintile for females



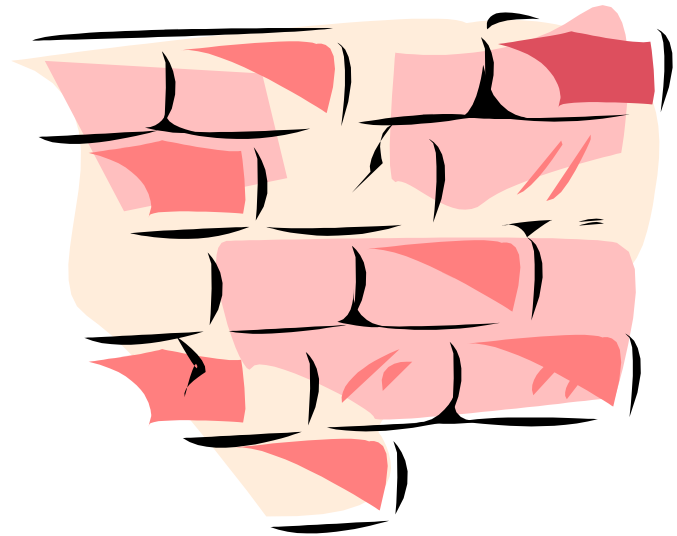
Barriers to Quality Healthcare

Patient

- Affordability
- Family responsibilities
- Emotional stress
- Demands of work
- Language
- Lack of awareness

Service

- Availability of service
- Culturally insensitive services
- Complexity of access
- Bad experience of service
- Discrimination
- Clinical practice



Summary

- Population Health data can be used in many innovative ways at provincial, regional and local levels for:
 - Public Health and Health system planning
 - Inter-sectoral planning and policy making
 - Research and evaluation
 - Increasing health equity
- Investment in infrastructure and capacity is required:
 - With knowledge of the local context
 - With expertise in public health, health system, and inter-sectoral levels