

Notes on Measurement and Accountability in Public Health for a Meeting of the IoM Panel

§ context / what is “public health”

§ Canadian experiences

- quick overview
- on “indicatoritis” and information systems
- British Columbia early learning example

Assumed Context (paraphrased from James Mark transcript)



- § RWJ would like actionable recommendations; practical and balanced; useful and compelling
- § for state, local, and federal public health and public health practice
- § broaden the definition of public health and population health, and how such actions improve health
- § look at the role of scorecards and summary measures of health
- § measurement is fundamental; help elevate the state of practice
- § help the public understand what is the quality of public health as practice, the standards of practice, and help answer how healthy is their community, their neighborhood as a place to live

Public Health “Portfolio”



§ evolution: sanitation → infectious disease → infant and maternal health → “Framingham” risk factors / occupational health and safety / toxicology → social determinants → ?

- n.b. “obesity counselling” vs “obesogenic environment
- i.e. (rugged) individualism vs system view

§ future: ? rethinking primary care / inter-sectoral policy / (macro) health impact assessment

§ links to: ? electronic health records / “personalized medicine”

§ Cory Neudorf: “my patient is the community”

Measurement



§ commonplaces

- “you can’t manage what you can’t measure”
- “you get what you measure”
- ⇒ measurement presupposes (or ought to) well-defined goals and objectives

§ public health and measurement - challenges

- anathema to many PH professionals – non-quantitative backgrounds
- everything is multi-factorial (especially since Pop Health and social determinants)

Canadian Experiences



- § CIAR program in Population Health
- § Health Information Roadmap (1999)
- § Canadian Community Health Survey (CCHS)
 - survey itself / menu options
- § First Ministers Health Accord – failure of accountability
- § Health Infoway Inc.
- § LHAD // role of HUI
- § “Canada is a land of pilot projects”

CCHS Optional Content Chosen by Health Regions in 2007

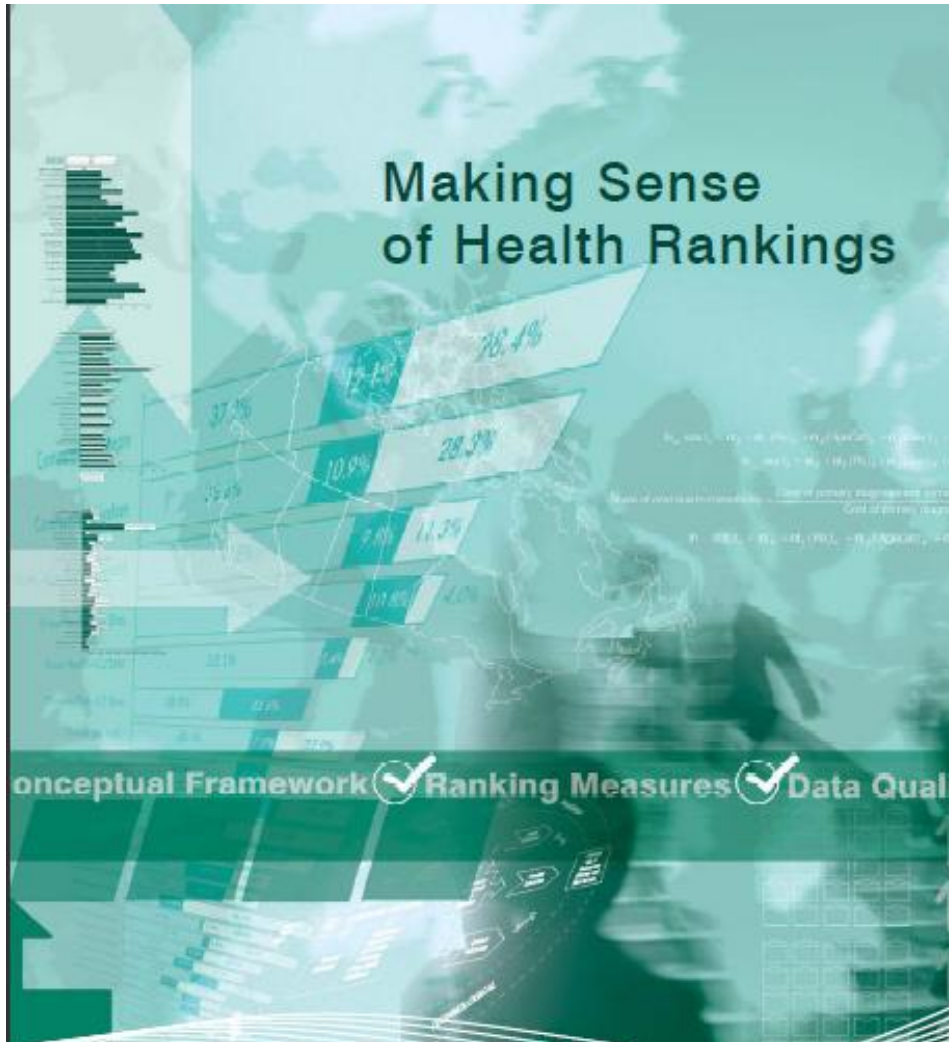
- § Voluntary organizations – Participation
- § Sleep
- § Health care system satisfaction
- § Diabetes care
- § Health Utilities Index (except pain) / Health status (SF-36)
- § Home care services / satisfaction with Community-based care
- § Blood pressure check
- § PAP smear test
- § Mammography / Breast examinations
- § Eye examinations
- § Prostate cancer screening
- § Colorectal cancer screening
- § Dental visits / oral health
- § Food choices / Dietary supplement use
- § Use of protective equipment
- § Sun safety behaviours
- § RSI injuries
- § Satisfaction with life / Psychological well-being
- § Stress – Sources / Coping with stress / Recent life events / Childhood and adult stressors / Work stress
- § Self-esteem / Mastery / Spiritual values
- § Smoking – Stages of change / Nicotine dependence / cessation methods / Physician counselling / Youth smoking / Other tobacco products / Smoking during pregnancy
- § Alcohol use during the past week / Former drinkers / Dependence / Alcohol use during pregnancy
- § Driving and safety / Home safety
- § Illicit drugs use
- § Problem gambling
- § Sexual behaviours
- § Social support – Availability / Utilization
- § Consultations about mental health
- § Distress / Depression / Suicidal thoughts and attempts
- § Insurance coverage

Methodological Points



- § “indicatoritis” – no indicators without underlying data system; once a data system, then many indicators and covariates are possible \Rightarrow should be designing data systems, not indicators
- § small area estimation
- § community qua community – i.e. more than simply the (reductionist) aggregation of individuals’ (or a sample thereof) characteristics
 - Clyde Hertzman anecdote

CIHI + Stat Can “Manual” on Rankings



Checklist for Reviewing Health Ranking Reports

Step 1: Assess the soundness of the conceptual framework

- Does the ranking scheme's conceptual framework cover the areas of health and health care that are relevant to the purpose of the ranking?

Step 2: Assess the indicators chosen to measure selected aspects of health and health care

- Are the indicators of health or health care used in the ranking consistent with the conceptual framework?
- Are the measures used for the selected indicators meaningful and valid?

Step 3: Assess the data quality

- Are data accurate, reliable, complete, comparable and free from bias?
- Are data elements defined and collected so that "apples to apples" comparisons are being made?

Step 4: Examine soundness of methods

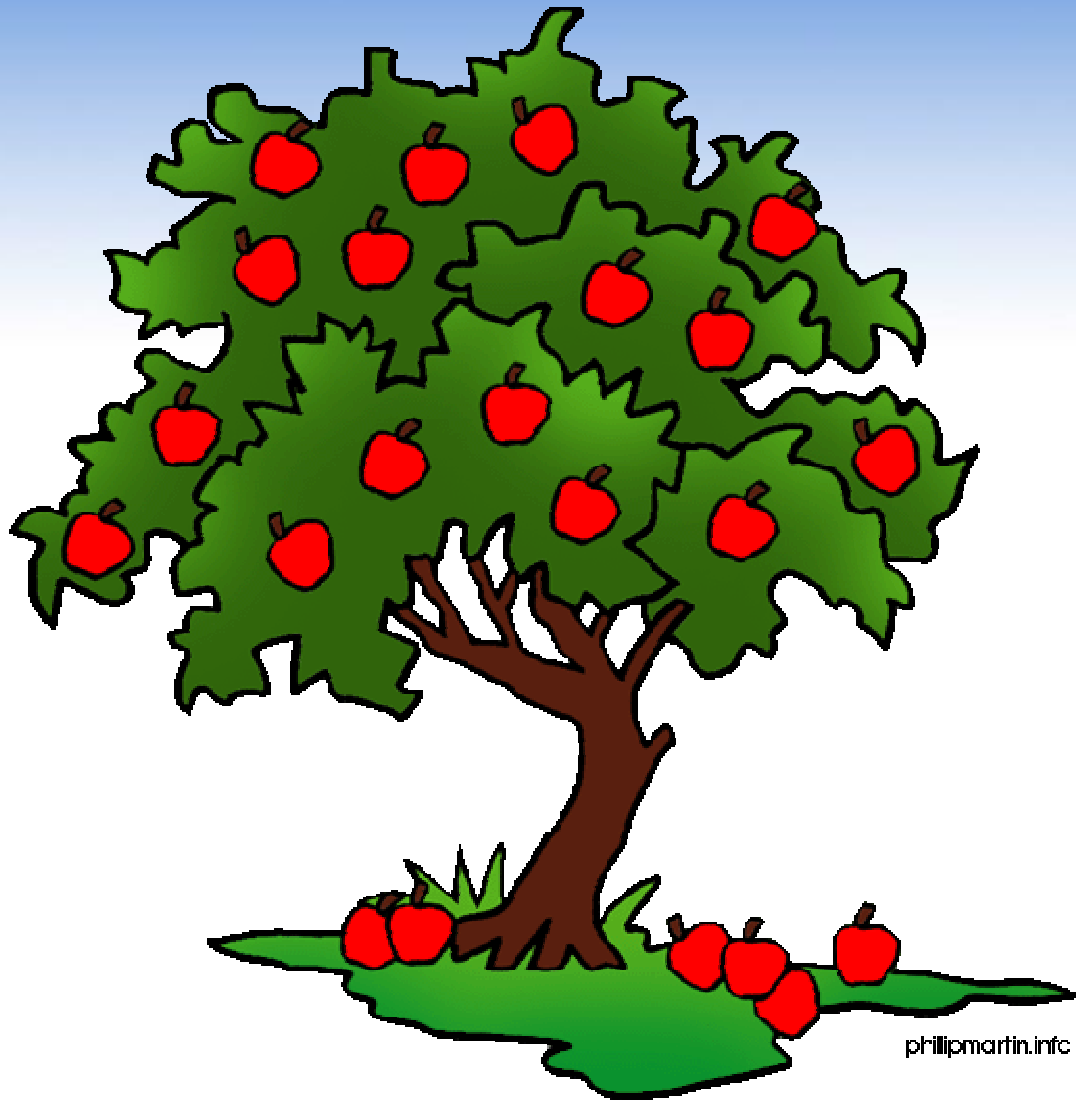
- Are meaningful differences in performance distinguishable?
- Are absolute and relative comparisons available for review?
- Have appropriate adjustments been made for underlying differences in the populations being compared?
- Is the way specific measures are combined in the ranking scheme clear?
- Is the specific formula, along with any weights used to combine individual measures or indicators, based on clear and reasonable principles?
- Are differences in performance statistically significant?
- Have other statistical issues been appropriately handled (for example, adjustments for correlated measures or handling outlier values and ties)?
- Have the authors of the report reduced the potential for bias through full disclosure of ranking methods and peer review?

Health Indicator Conceptual Framework

Health Status			
Well-being	Health Conditions	Human Function	Deaths
Non-Medical Determinants of Health			
Health Behaviours	Living and Working Conditions	Personal Resources	Environmental Factors
Health System Performance			
Acceptability	Accessibility	Appropriateness	Competence
Continuity	Effectiveness	Efficiency	Safety
Community and Health System Characteristics			
Community	Health System	Resources	

EQUITY

Naïve Indicatoritis



 = indicator

phillipmartin.info

Appropriate Indicatoritis

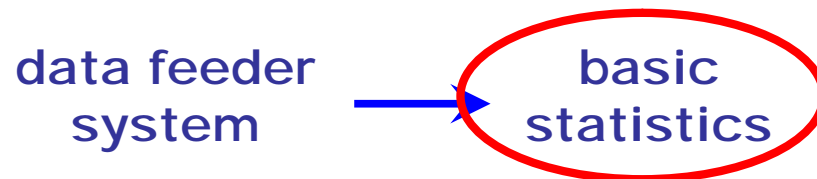
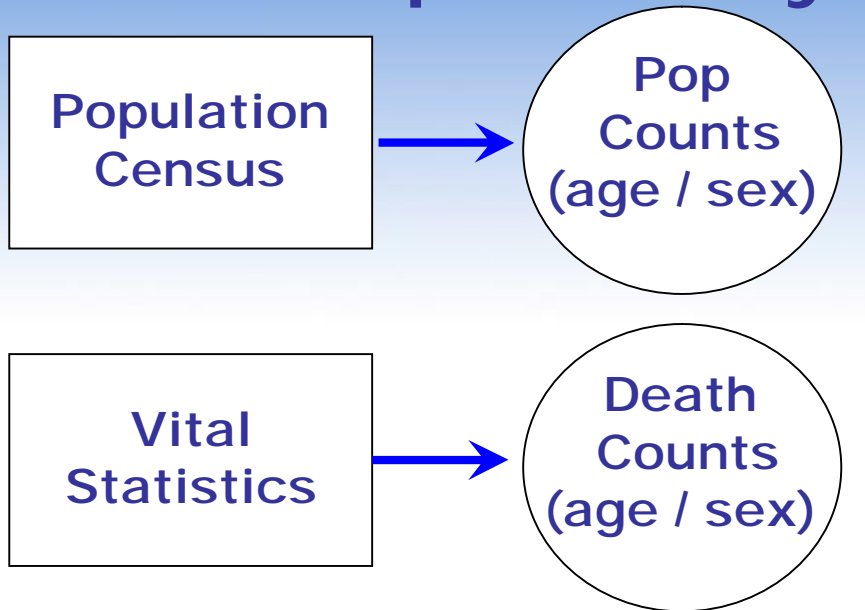
- Life Expectancy

Population
Census

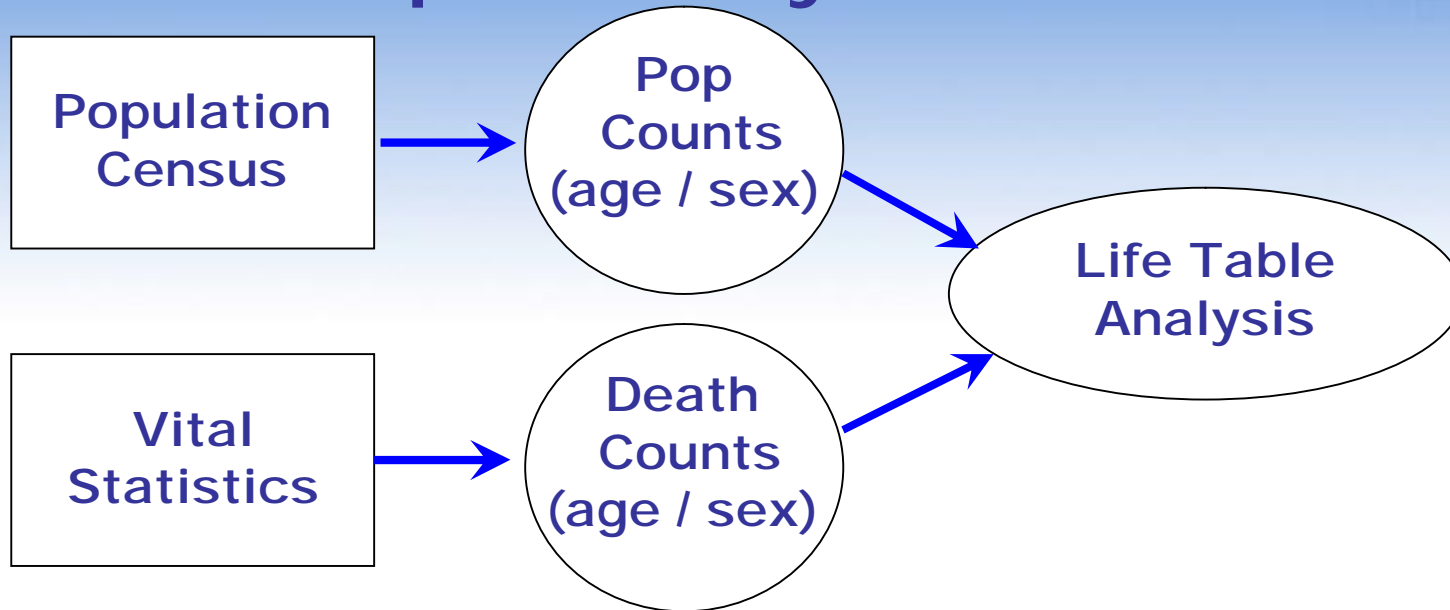
Vital
Statistics

data feeder
system

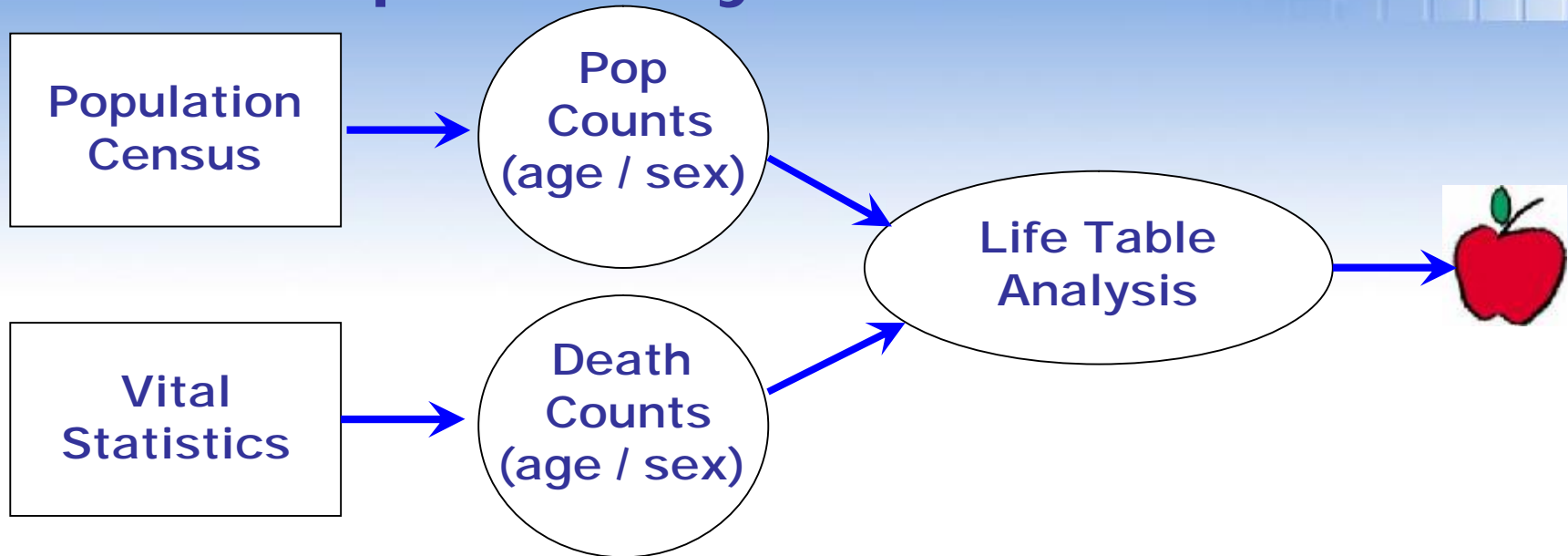
Appropriate Indicatoritis - Life Expectancy



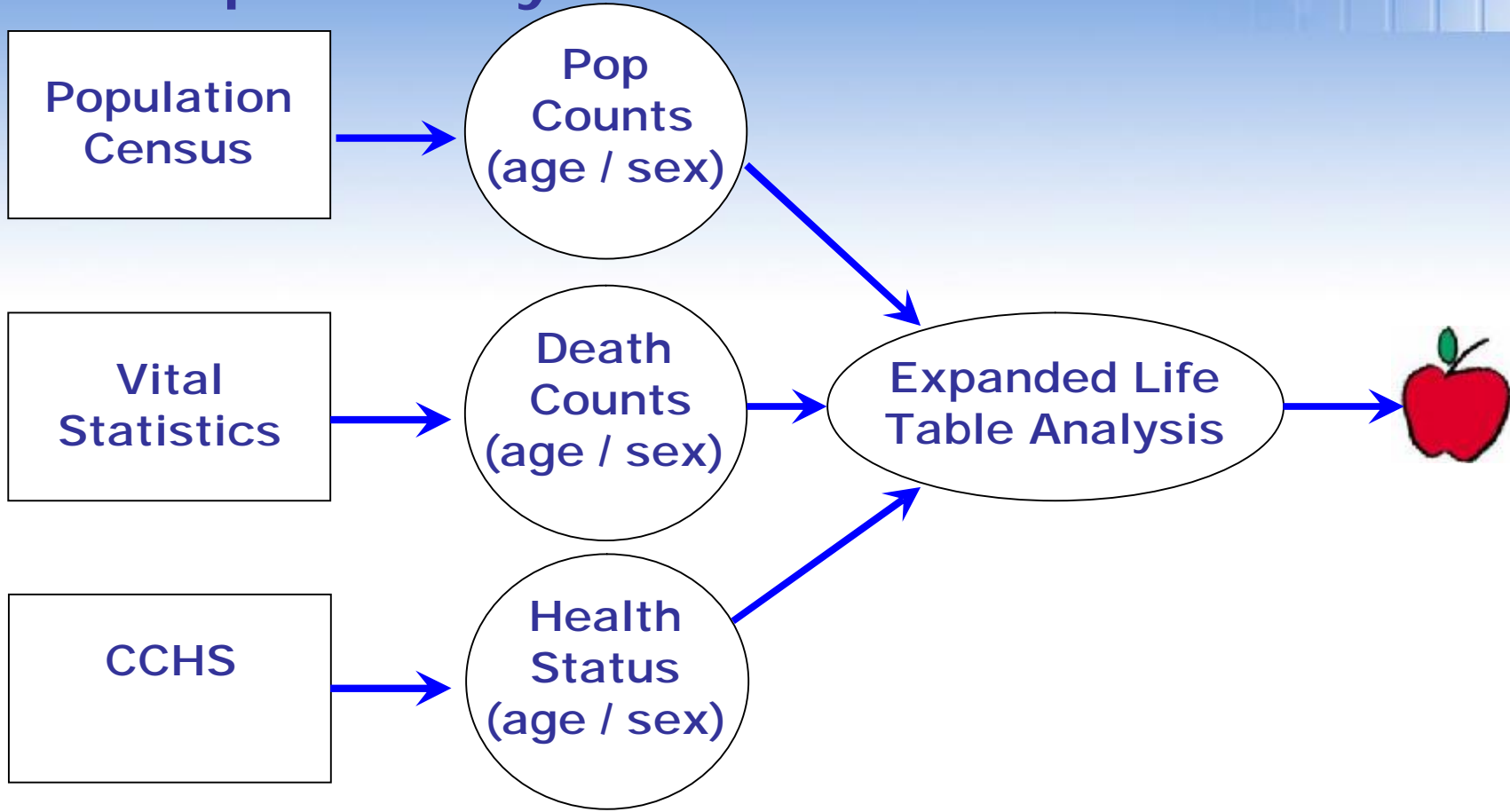
Appropriate Indicatoritis - Life Expectancy



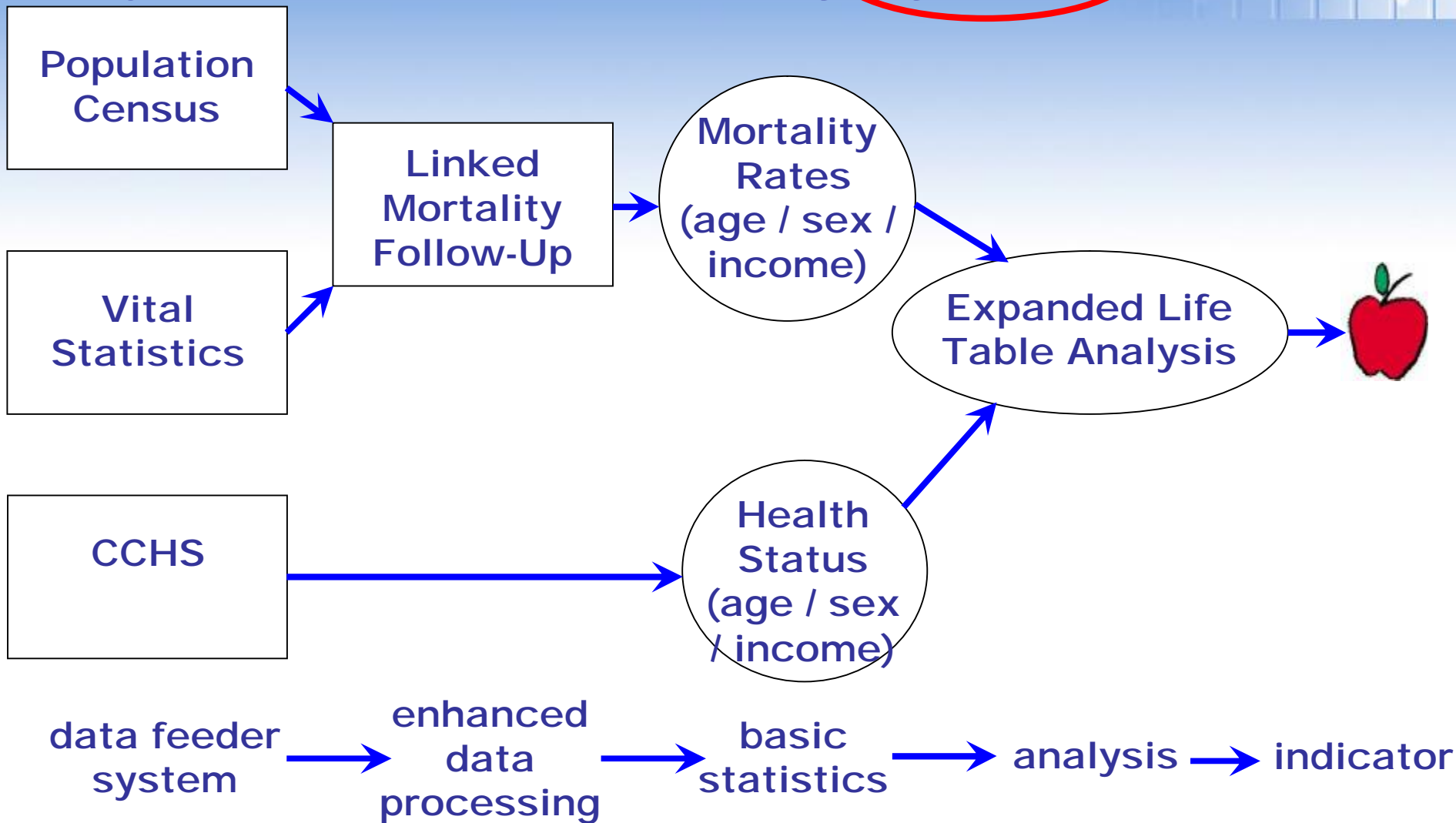
Appropriate Indicatoritis - Life Expectancy



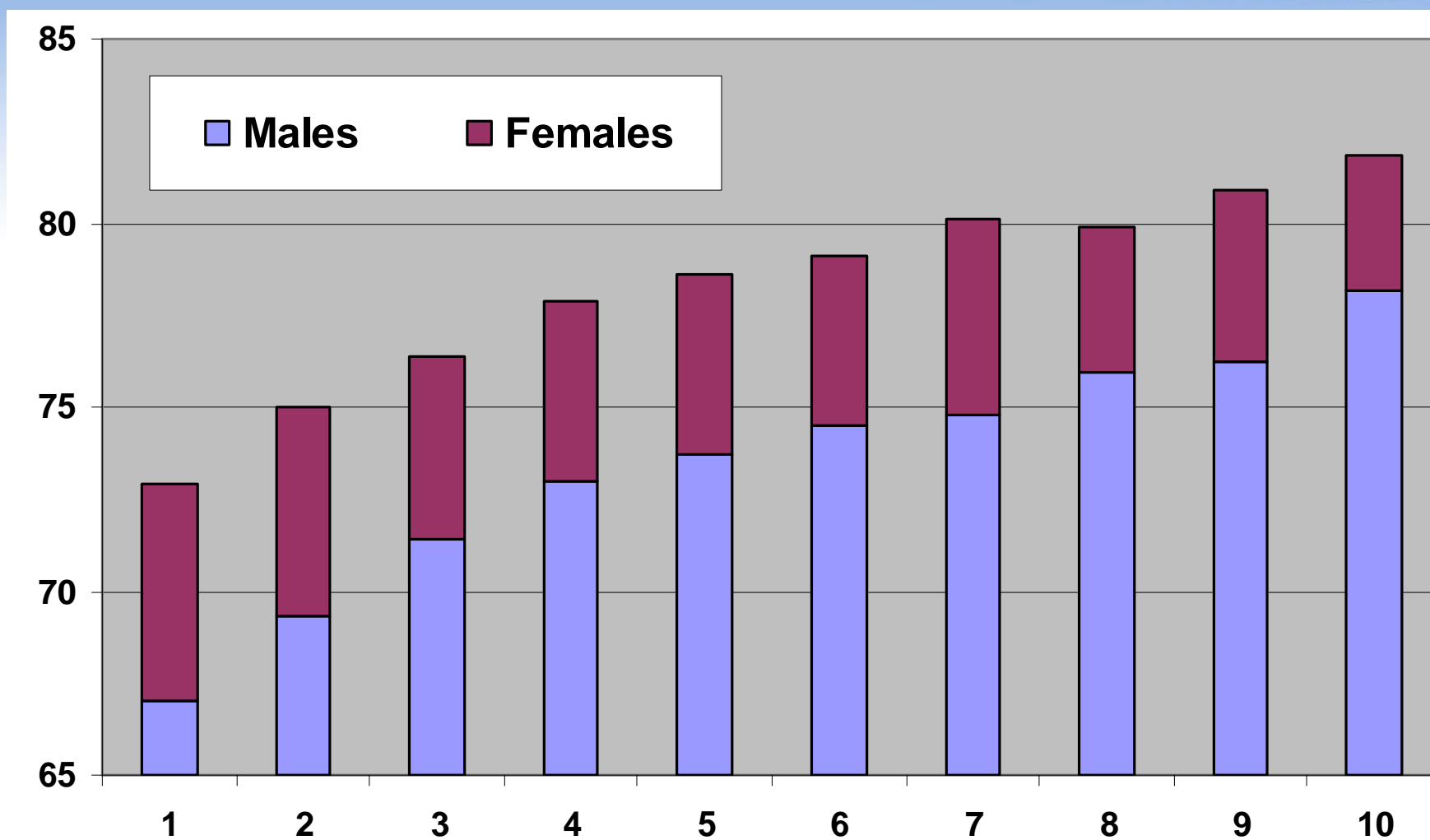
Appropriate Indicators - Health-Adjusted Life Expectancy



Appropriate Indicators - Health-Adjusted Life Expectancy by SES



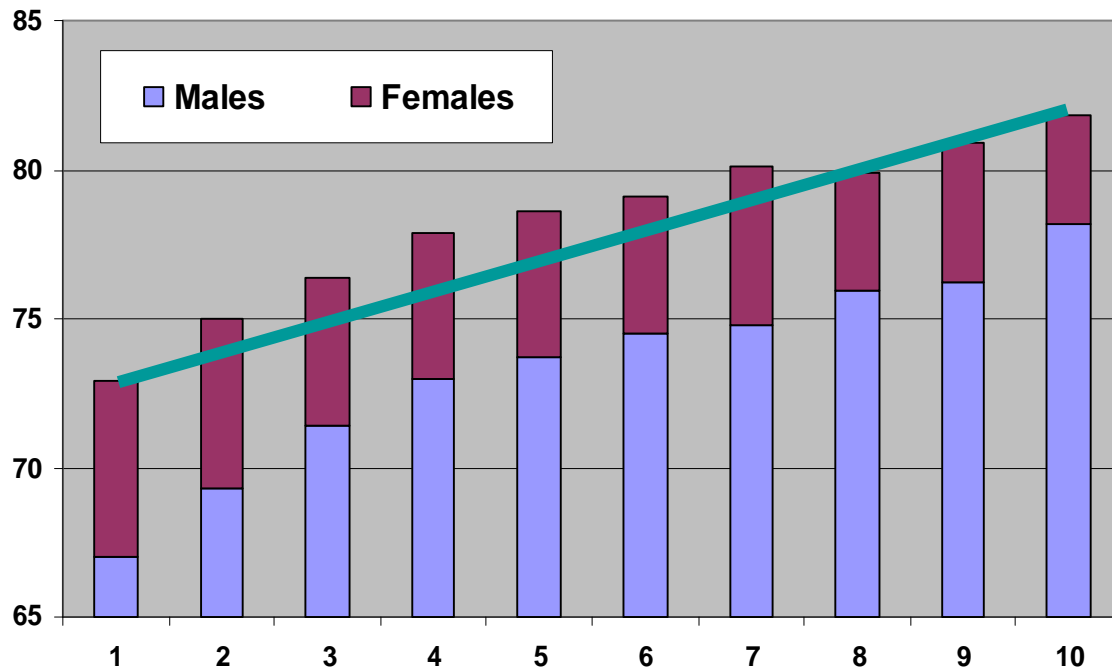
HALE by Income Decile, 1990s



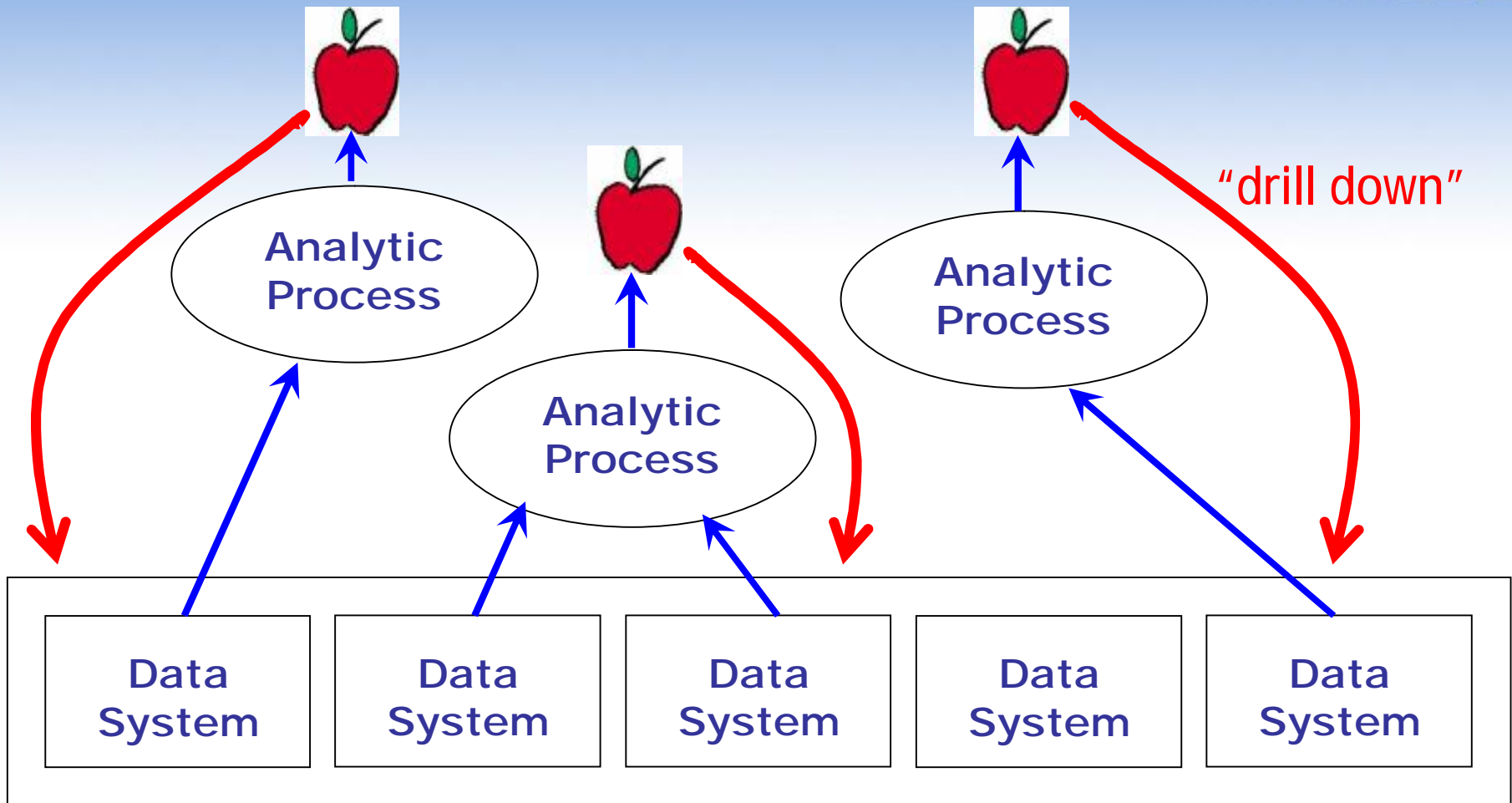
HALE by Income Decile, 1990s

Which Indicator(s)?

- § all 20 numbers
- § 90 – 10 ratios by sex
- § 80 – 20 ratio for both sexes combined
- § slope



Aggregation and Disaggregation



Readiness to Learn – British Columbia Example

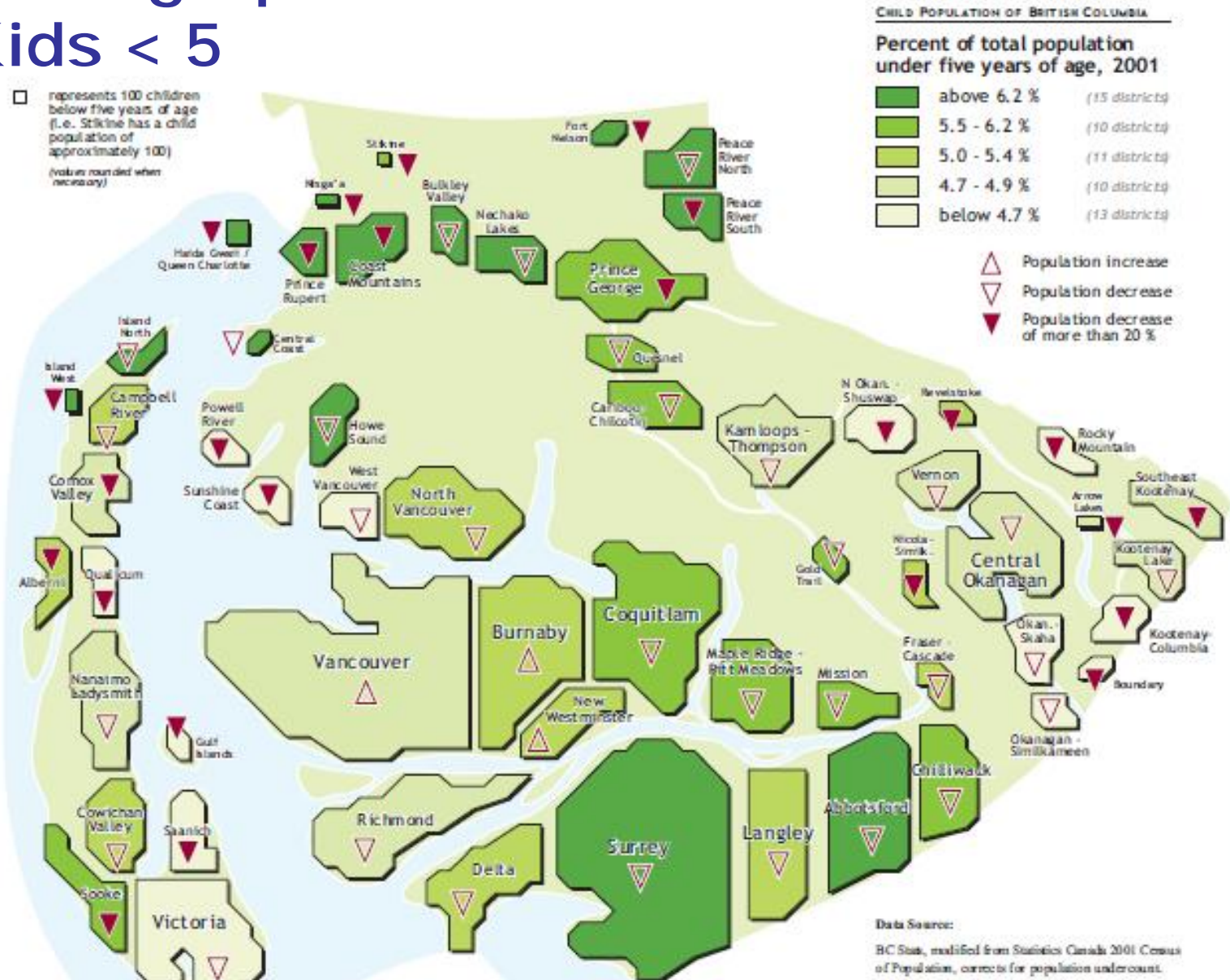


- § developed measurement instrument – EDI
- § achieved almost complete coverage of 5 year olds across B.C.
- § met with community leaders – inter-sectorally(!)
- § options for interventions developed locally
- § measured change over time
- § looked for successes
- § evaluated / analyzed both quantitative and qualitative (narratives)
- § Clyde Hertzman, UBC and CIAR – leader

Letter from Dr. Clyde Hertzman, Director of HELP (Human Early Learning Partnership), January, 2009

- § “Our early childhood experiences influence health, well-being, learning and behaviour for the rest of our lives. Until recently in Canada, the implications of this were left to families to cope with on their own. ... We have tried to show Canadians that community and society have a role to play in helping families ensure that these experiences support healthy early child development and do not undermine it.
- § “Our work with the Early Development Instrument (EDI) has demonstrated large, and largely avoidable, differences in the state of early child development across neighbourhoods in British Columbia. ... due to the quality of the early experiences that each child enjoys or suffers. As our work has unfolded it became clear that these differences were not solely attributable to family social and economic conditions. Some communities were simply providing better early childhood experiences than others. Moreover, providing EDI data to local communities has served as a litmus test, showing that the capacity of different communities to mobilize around early childhood varies greatly.”

BC Iso-Demographic Map & Kids < 5



from "EDI in BC: Documenting Impact and Action ...

www.earlylearning.ubc.ca/documents/2009/EDI_in_BC_Jan_09.pdf

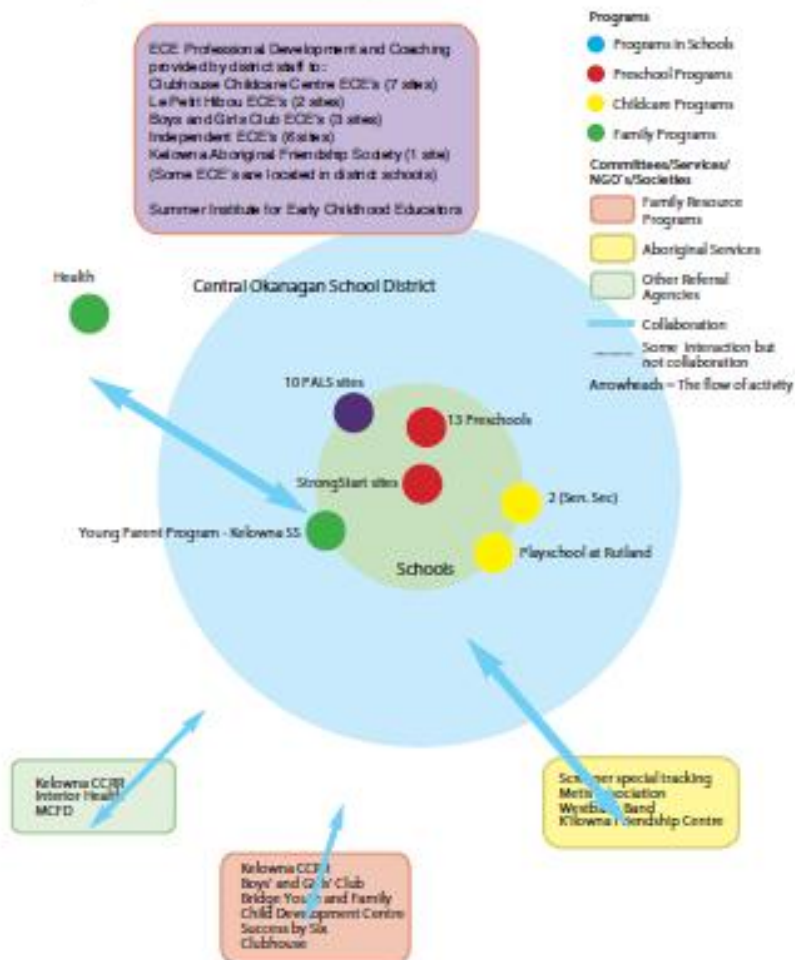
SD 23

Intersectoral Coalition Map

BCSTA Project: SD23 Central Okanagan Intersectoral Connectedness Chart

Intersectoral Group Membership:

Intersectoral coalition partners include SD23, MCFD, CATCH (Community Action Towards Children's Health), Kelowna Child Care Society, the Okanagan Child Development Centre, Interior Health, and Success by Six.



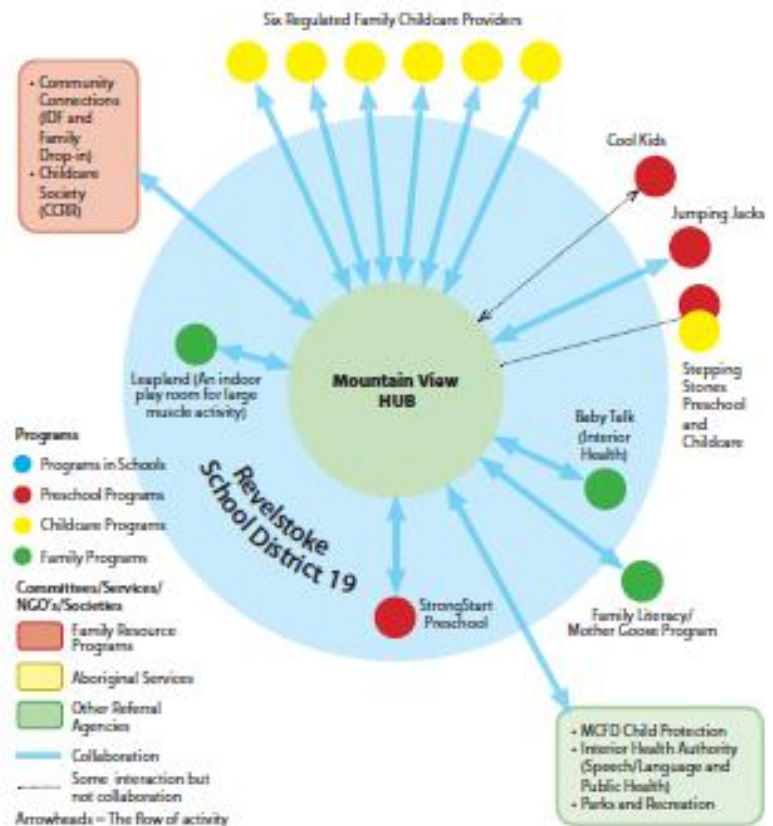
SD 19

Intersectoral Coalition Map

BCSTA Project: SD19 Revelstoke Intersectoral Connectedness Chart

Intersectoral Group Membership

- Childcare Society
- School District
- Community Connections (Infant Development, Supportive Childcare)
- Mental Health
- Speech and Language
- Public Health
- Kindergarten Teachers
- >ECE's
- MCFD
- Family Literacy
- Okanagan Library
- City of Revelstoke
- ScreenSmart



British Columbia

All School Districts

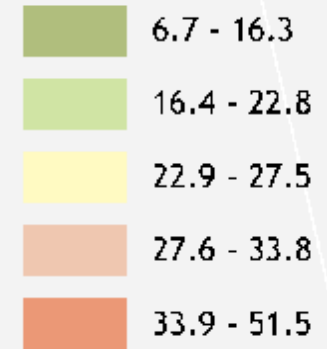
2008 - 2009

EDI

Percent Vulnerable on One or More Scales of the EDI

Percent of children vulnerable on one or more scales of the EDI

Percent Vulnerable



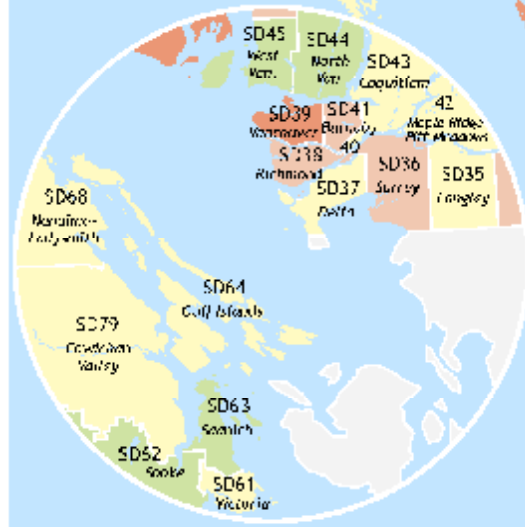
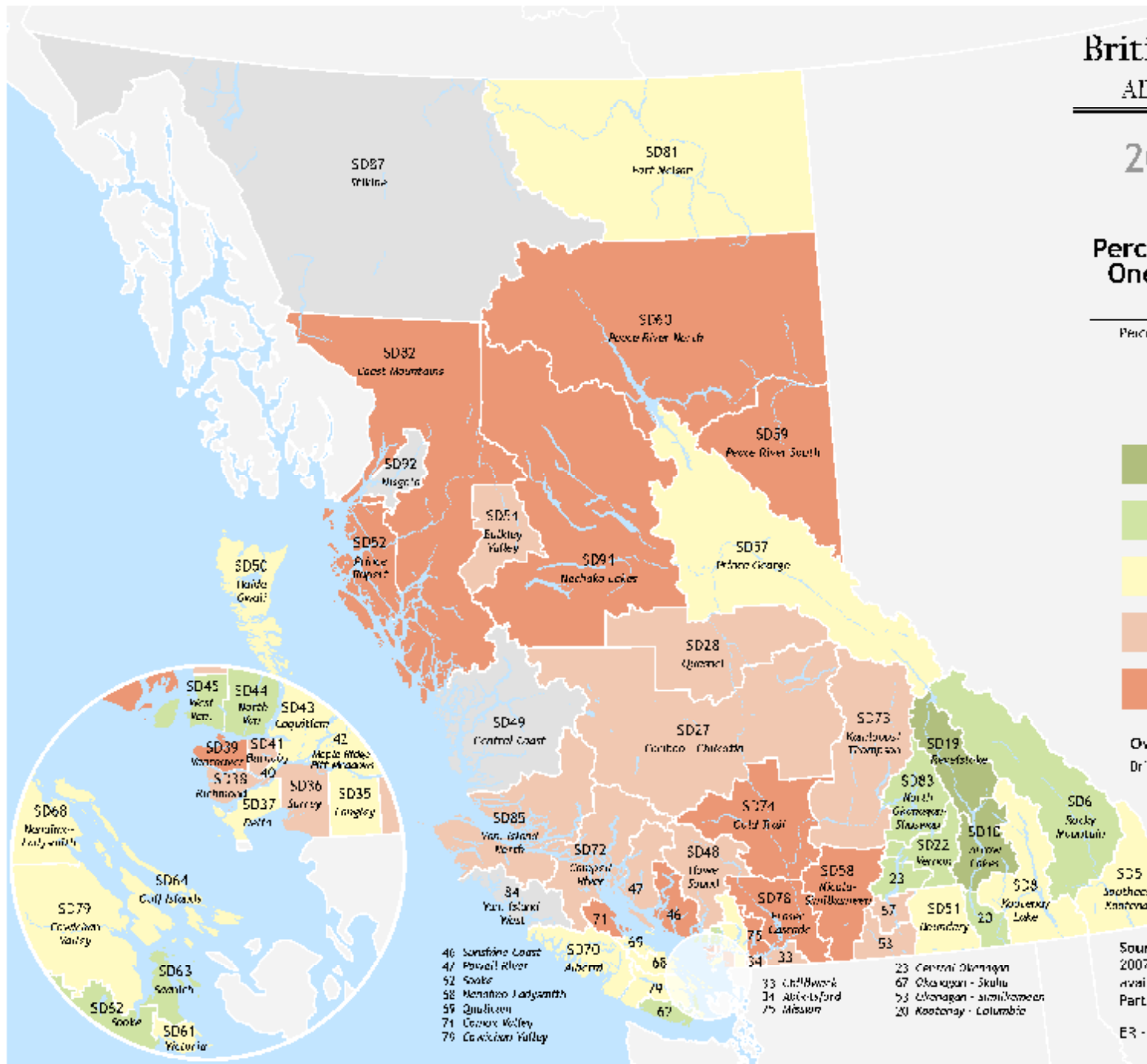
Overall Percent Vulnerable

British Columbia 28.5

Notes: The total EDI population for the Province is 35,782. 4 school districts are suppressed as there are fewer than 35 children.

Source: EDI 2008-2009, including 2007-2008 EDI results where data is available. Human Early Learning Partnership.

ER - Sept 2009



- 46 Sunshine Coast
- 47 Powell River
- 52 Sooke
- 58 Nanaimo Ladysmith
- 59 Qualicum
- 71 Cowichan Valley
- 79 Cowichan Valley
- 33 Chilliwack
- 34 Abbotsford
- 35 Mission
- 23 Central Okanagan
- 67 Okanagan - Shuswap
- 53 Okanagan - Similkameen
- 20 Kootenay - Columbia

British Columbia

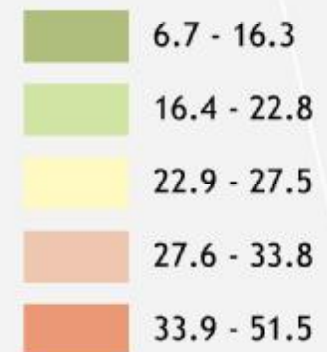
All School Districts

2008 - 2009
EDI

SES - EDI Relationship

Shows the relationship between the level of vulnerability on one or more scales of the EDI and the Socio-economic Status of the neighbourhood

Percent Vulnerable on One or More Scales of the EDI



Notes: The total EDI population for the Province is 35,782. 4 school districts are suppressed as there are fewer than 35 children.

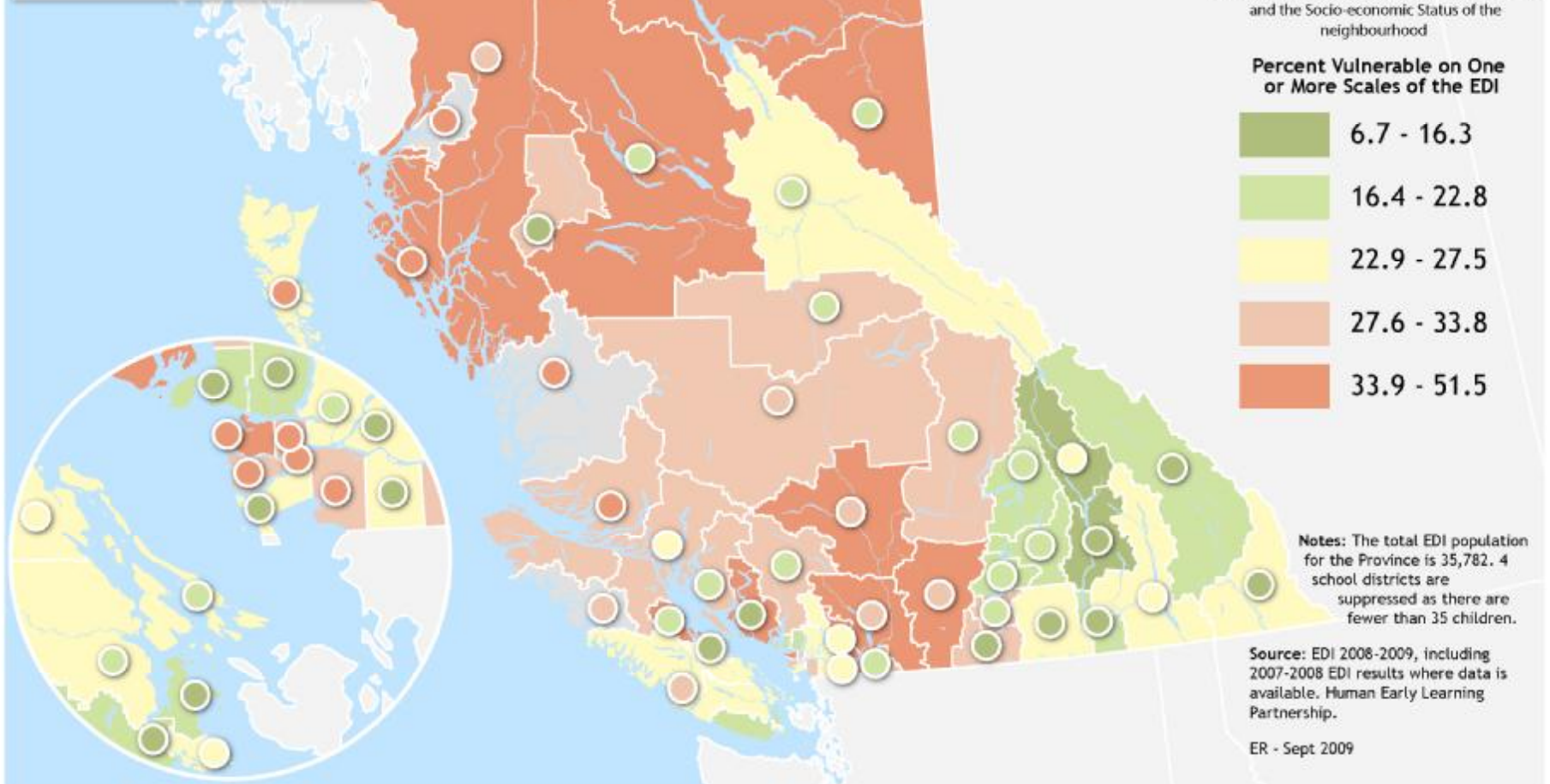
Source: EDI 2008-2009, including 2007-2008 EDI results where data is available. Human Early Learning Partnership.

ER - Sept 2009

Socio-Economic Status Index



Source: Statistics Canada 2006 census and Semi-Custom Area Profile and Taxfiler, 2004 Small Area Administrative Data.

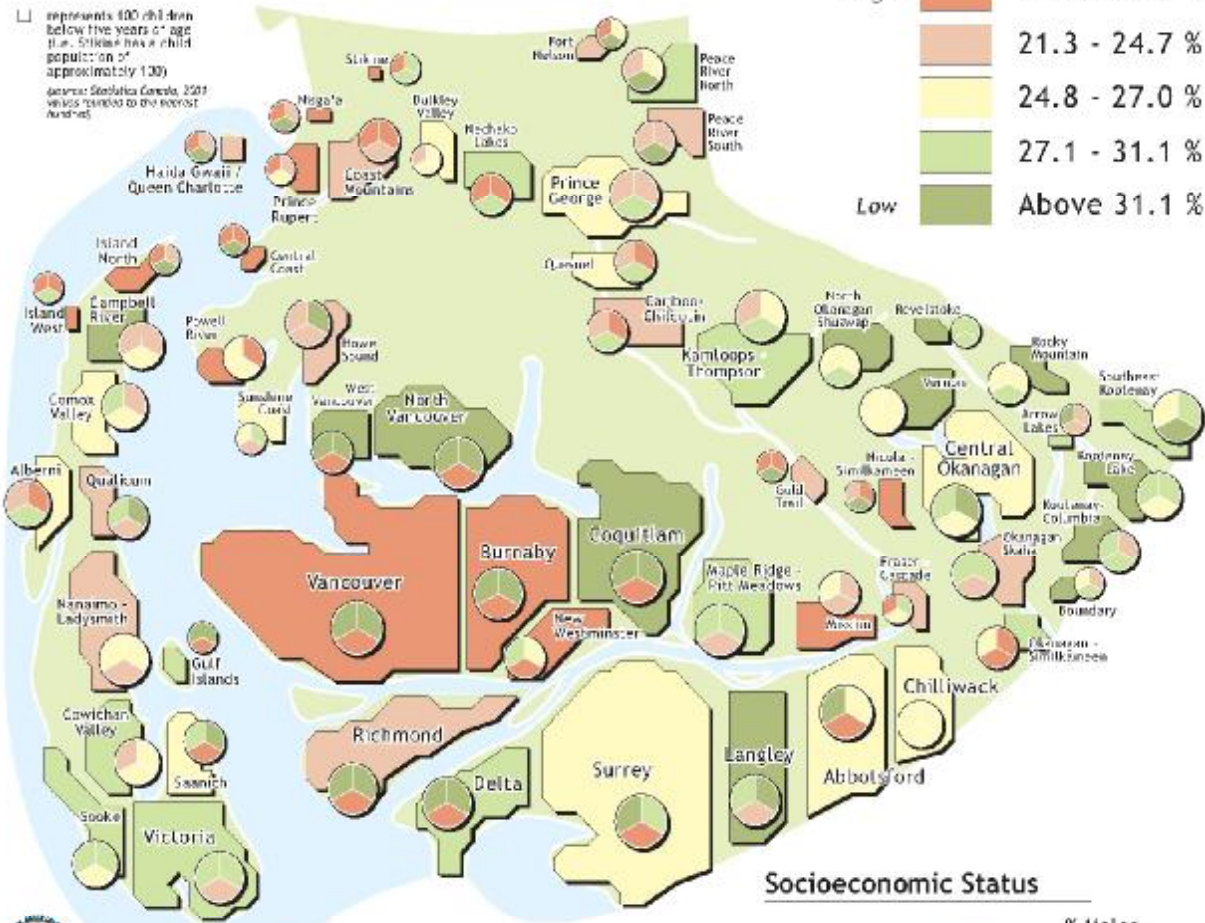


Vulnerable on One or More Scales

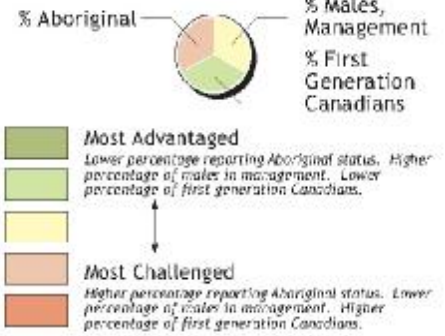
Percentage of children vulnerable



SDV District	Percent Vulnerable	% Aboriginal	% Males in Management	% First Generation Canadian
45 West Vancouver	14.0	1.4	27.6	41.2
20 Kootenay - Columbia	15.2	3.2	8.6	13.0
6 Rocky Mountain	16.6	4.9	10.9	12.2
72 Campbell River	18.1	6.9	9.2	16.0
22 Vernon	19.4	4.7	10.8	14.8
19 Revelstoke	19.6	2.7	11.1	12.8
8 Kootenay Lake	19.9	3.2	11.3	14.9
14 North Vancouver	19.9	1.9	18.6	37.8
31 Boundary	20.0	4.0	9.4	13.0
35 Langley	20.1	2.5	15.3	19.9
83 North Okanagan - Shuswap	20.1	4.9	10.9	12.9
43 Coquitlam	20.9	1.6	15.8	38.5
5 Southeast Kootenay	21.4	5.5	11.3	11.8
10 Arrow Lakes	21.7	2.2	8.9	18.3
37 Delta	21.8	1.8	15.7	32.4
62 Sooke	22.3	3.7	11.5	15.4
42 Maple Ridge	23.7	2.7	12.8	21.5
79 Cowichan Valley	23.8	8.6	11.0	17.5
91 Nechako Lakes	23.9	19.3	6.7	13.2
60 Peace River North	24.1	11.8	10.0	8.5
64 Gulf Islands	24.1	2.2	16.0	28.3
53 Okanagan - Similkameen	24.3	5.8	8.3	24.6
61 Greater Victoria	24.4	2.5	12.6	24.3
73 Kamloops - Thompson	24.7	6.9	10.6	12.7
37 Prince George	24.9	9.1	9.4	12.7
71 Comox Valley	25.1	3.5	9.8	16.5
63 Saanich	25.3	3.2	16.9	24.6
46 Sunshine Coast	25.4	4.8	12.0	20.3
70 Alberni	25.4	16.3	8.9	14.1
36 Surrey	25.7	2.0	12.9	40.3
28 Quesnel	25.8	8.9	7.9	12.8
33 Chilliwack	26.0	5.8	10.0	17.7
23 Central Okanagan	26.2	2.7	13.9	16.9
54 Bulkley Valley	26.5	10.8	10.4	16.2
34 Abbotsford	26.9	2.4	10.3	30.2
27 Cariboo - Chilcotin	27.1	13.9	8.7	14.4
74 Gold Trail	27.5	31.8	7.1	12.4
67 Okanagan - Skaha	27.6	2.9	12.8	19.2
69 Qualicum	28.4	2.5	14.3	22.3
38 Richmond	29.6	0.7	16.5	61.0
68 Nanaimo - Ladysmith	30.1	5.5	11.0	19.2
78 Fraser - Cascade	30.2	12.7	12.4	17.7
48 Howe Sound	30.3	7.4	13.6	21.0
59 Peace River South	30.3	14.6	8.9	9.8
81 Fort Nelson	30.3	18.4	10.1	6.2
82 Coast Mountains	30.8	21.8	8.7	17.9
50 Haida Gwaii	31.1	36.6	9.9	11.2
58 Nicola - Similkameen	31.3	17.0	7.8	12.3
10 New Westminster	31.5	3.0	10.8	33.3
17 Powell River	31.6	6.0	8.3	16.9
75 Mission	31.6	6.0	9.6	19.3
41 Burnaby	32.4	1.6	13.5	54.2
85 Island North	34.3	19.7	9.3	11.1
87 Stikine	34.7	54.7	11.9	13.7
84 Island West	35.7	20.7	7.5	15.6
92 Nisga'a	40.0	97.0	8.9	1.9
39 Vancouver	40.3	2.0	13.6	55.1
52 Prince Rupert	40.4	35.4	9.4	17.5
49 Central Coast	45.9	59.4	8.0	8.1



Socioeconomic Status



Notes:
 Source: EDI Cycle 1 (2000 - 2004), Human Early Learning Partnership. The total sample size is 43,395. For Arrow Lakes, Revelstoke, Central Coast, Vancouver Island West and Nisga'a (districts 10, 19, 49, 84 and 92, respectively). Cycle 1 includes data from 2005 in order to increase the sample size.
 socio-economic data adapted from Statistics Canada, 2001 Census of Population, Small-census Area Profile. Statistics Canada information is used with the permission of Statistics Canada. Information on the availability of the wide range of data from Statistics Canada can be obtained from Statistics Canada's Regional Offices, its World Wide Web site at <http://www.statcan.ca>, and its toll-free access number: 1-800-263-1136.
 Colour classification is based upon quantiles.
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Percentage of Children Vulnerable

(Provincial vulnerability cut-offs)



ARROWS
Arrows indicate neighbourhoods where colour classification has changed between Waves.

DARK BOXES
Dark outlines around cells indicate statistically significant change between Waves.

Note:
Data sorted by the percentage of children vulnerable on one or more scales (Wave 2).

School District Name	Phys			Soc			Emo			Lang			Com			One or More			
	Wave1	Wave2	Change	Wave1	Wave2	Change	Wave1	Wave2	Change	Wave1	Wave2	Change	Wave1	Wave2	Change	Wave1	Wave2	Change	
Revelstoke	19	4.5	4.0	-0.47	5.6	4.7	-0.99	5.6	4.0	-1.62	12.4	4.0	-8.36	7.9	4.0	-3.87	19.1	12.0	-7.10
West Vancouver	45	6.8	6.7	-0.14	4.7	7.3	2.62	9.3	8.3	-1.04	3.2	2.5	-0.72	9.4	5.4	-0.09	14.3	18.9	4.59
Arrow Lakes	10	17.9	6.3	-11.62	17.9	12.7	-5.29	10.3	12.7	2.40	15.4	11.4	-3.99	17.9	15.2	-2.76	23.6	19.0	-4.65
Boundary	51	5.5	6.8	1.30	8.8	7.9	-0.91	8.2	8.9	0.69	11.9	9.6	-1.98	4.4	7.2	2.77	20.3	19.5	-0.88
Gulf Islands	64	10.0	6.3	-3.75	12.6	5.6	-6.97	8.6	8.1	-0.50	10.1	8.8	-1.25	8.0	3.7	-4.31	24.5	20.5	-4.00
Kootenay - Columbia	20	5.9	7.9	1.96	8.3	7.9	-0.42	6.7	11.3	4.56	5.6	5.6	0.01	7.0	7.1	0.12	16.7	21.0	4.31
Vancouver Island North	25	18.3	7.7	-10.60	18.0	11.1	-6.85	18.5	6.7	-11.85	17.6	12.2	-5.40	11.4	7.7	-3.69	35.4	22.0	-13.39
Kamloops/Thompson	73	11.8	9.6	-2.23	10.7	8.7	-1.97	10.7	6.9	-3.78	11.3	8.5	-2.79	7.3	8.2	0.92	23.8	22.5	-1.28
Sunshine Coast	46	11.7	10.7	-1.04	12.6	9.7	-2.84	8.9	8.8	-0.61	10.4	12.2	1.78	2.5	10.2	7.69	27.1	22.8	-4.27
Langley	35	10.1	7.8	-2.35	8.8	9.7	0.94	8.5	9.2	0.78	7.8	9.1	1.28	6.8	10.2	3.39	20.9	22.8	1.99
Kootenay Lake	08	9.7	9.6	0.33	7.9	8.0	0.09	9.0	12.1	3.13	5.5	7.4	1.82	5.9	6.3	0.41	20.8	22.9	2.07
Rocky Mountain	06	7.6	10.7	3.06	6.1	9.6	3.47	7.4	10.9	3.46	6.3	8.5	2.13	4.8	7.5	2.70	17.6	23.0	5.36
Central Coast	49					8.7			7.2			13.0			12.0				23.1
Coquitlam	43	9.3	6.6	-2.67	7.8	7.9	0.12	9.3	8.3	-0.99	6.6	7.4	-1.22	9.1	12.2	4.11	21.3	23.2	1.97
Vancouver Island West	34			13.0		7.3			9.1			7.3			10.9				23.6
Vernon	22	9.5	10.5	0.99	6.5	12.8	6.21	8.7	7.2	-1.59	11.1	8.7	-2.41	7.0	10.0	3.08	22.4	23.8	1.44
North Vancouver	44	7.6	9.0	1.36	10.1	9.9	-0.17	8.8	9.8	1.04	6.8	7.9	1.08	7.5	11.4	3.91	20.9	24.0	3.07
Queens	78	14.8	8.0	-6.88	6.0	8.5	2.43	5.2	7.5	2.28	12.5	15.9	3.46	7.4	9.5	2.01	26.5	24.4	-2.12
Greater Victoria	61	11.3	11.1	-0.64	10.1	8.0	-2.08	11.9	8.9	-3.06	10.1	7.7	-2.37	9.7	11.4	1.71	26.0	24.6	-1.34
Maple Ridge - Pitt Meadows	42	11.3	10.0	-1.30	12.4	11.8	-0.62	9.7	9.8	0.10	8.8	8.6	-0.20	6.9	9.8	2.90	24.1	24.6	0.50
Cowichan Valley	79	15.1	11.5	-3.62	9.9	11.4	1.47	11.7	11.8	0.12	10.9	14.7	3.83	9.9	12.1	2.24	25.4	26.2	0.71
Bulkley Valley	54	12.4	11.5	-0.91	14.8	11.5	-3.30	11.9	10.8	-1.16	13.0	12.2	-0.73	8.6	11.5	2.87	26.5	26.6	0.08
Sooke	62	12.8	12.8	0.01	11.3	11.9	0.54	13.0	12.3	-0.75	12.0	12.1	0.03	7.7	8.3	0.62	25.8	26.9	1.16
Central Okanagan	23	12.5	13.1	0.60	10.8	12.5	1.74	12.5	13.8	1.27	11.7	6.5	-5.23	9.1	11.0	1.91	27.2	27.0	-0.25
Skaha	57	14.0	16.9	2.95	22.0	11.9	-10.14	14.3	10.2	-4.12	16.0	13.6	-2.44	14.0	15.3	1.25	36.0	27.1	-8.88
Howe Sound	48	11.3	13.4	2.11	12.5	14.7	2.18	11.0	13.0	2.05	7.3	6.5	-0.78	9.2	10.6	1.38	22.8	27.4	4.62
Peace River North	60	13.0	7.1	-5.86	9.8	15.6	5.79	8.1	10.6	2.54	13.2	14.1	0.89	8.8	13.8	4.47	26.2	28.1	1.99
Powell River	47	12.8	11.2	-1.58	13.4	11.9	-1.46	12.1	15.7	3.52	18.4	14.1	-4.31	11.2	11.1	-0.10	32.1	28.1	-3.94
Prince George	57	14.6	13.7	-0.95	11.7	14.5	3.32	9.7	10.2	0.51	11.1	11.6	0.52	9.6	11.6	1.98	26.4	28.4	1.98
Campbell River	72	7.6	13.8	6.15	6.6	13.0	6.40	7.4	10.7	3.28	7.3	11.9	4.65	6.1	12.8	6.69	18.9	28.8	9.84
Okanagan - Shaha	67	15.0	12.9	-2.10	12.5	14.9	1.38	14.2	14.0	0.27	10.3	11.6	1.33	10.7	12.4	1.66	29.8	28.9	-0.90
Nission	75	13.7	8.3	-5.45	14.4	13.4	-0.92	13.9	12.5	-0.44	16.1	7.8	-8.33	13.9	13.4	-0.45	33.3	28.9	-4.39
Richmond	38	10.0	6.8	-3.12	14.1	12.9	-1.17	11.4	11.0	-0.42	10.5	7.7	-2.83	15.4	17.2	1.79	31.0	28.5	-2.56
Hanalei - Ladysmith	68	15.1	14.9	-0.46	14.9	14.7	-0.25	12.7	11.8	-0.60	16.4	12.7	-3.70	12.1	12.1	0.05	32.7	29.5	-3.21
Alberni	70	10.7	8.4	-2.30	8.1	9.0	0.91	9.8	11.2	1.37	17.1	20.2	3.21	6.1	9.6	3.45	26.0	29.5	3.51
New Westminster	40	13.8	9.2	-4.54	15.9	13.8	-1.17	13.3	12.9	-0.38	12.0	10.1	-1.87	18.6	16.4	-2.23	33.3	29.8	-3.57
Mt Waga	52			10.0		2.0			12.0			14.0			12.0				30.9
Delta	37	7.2	10.6	3.40	7.2	14.5	7.34	6.8	12.0	5.22	8.9	10.7	1.78	10.0	14.6	4.63	21.7	30.1	8.33
Surrey	36	9.2	10.9	1.72	9.8	12.7	2.87	8.8	10.9	2.12	12.4	11.6	-0.83	12.7	15.6	2.94	26.8	30.3	3.48
Quesnel	69	16.1	10.1	-6.08	10.3	22.6	12.29	13.1	11.7	-1.40	10.6	8.5	-2.18	6.6	8.0	1.35	30.2	31.8	1.52
Southeast Kootenay	05	10.1	14.8	4.68	10.5	14.2	3.78	11.3	17.8	6.42	6.9	8.8	1.91	6.1	9.9	3.74	22.3	32.0	9.71
Burnaby	41	10.6	9.7	-0.86	13.6	14.0	0.34	9.7	11.3	1.66	16.0	14.5	-1.41	17.2	20.5	3.29	33.7	33.1	-0.59
North Okanagan - Shuswap	83	12.1	16.6	4.54	8.7	18.8	10.08	13.0	15.9	2.90	9.7	13.9	4.27	8.5	14.9	6.42	23.8	33.3	9.43
Fort Nelson	21	11.0	17.4	6.43	11.0	23.9	12.95	16.4	19.0	2.51	9.6	11.6	2.01	2.7	12.3	9.58	32.9	33.3	0.46
Comox Valley	71	9.7	14.5	4.76	11.6	19.3	7.73	11.7	15.7	3.98	17.8	14.4	-1.64	6.7	13.8	7.03	24.8	33.6	8.79
Abbotsford	34	9.2	13.7	4.54	11.1	13.6	2.48	9.8	11.6	1.83	11.9	11.1	-0.56	13.6	19.0	5.43	27.6	34.3	6.66
Nicola - Similkameen	36	16.5	20.7	2.29	12.5	11.1	-1.39	12.6	14.8	-2.80	16.5	11.1	-7.34	12.5	16.3	3.80	34.5	34.8	0.29
Coast Mountains	82	16.1	17.1	1.01	14.1	15.5	1.42	11.1	10.4	-0.78	16.4	19.5	3.06	9.8	19.1	9.25	32.8	35.0	2.26
Okanagan - Similkameen	53	12.7	12.1	-0.09	11.0	10.8	-0.18	13.7	15.4	1.69	9.3	14.3	5.03	10.8	19.0	8.24	27.1	35.1	7.99
Peace River South	59	14.2	16.6	4.42	11.8	14.6	2.75	15.0	13.1	-1.92	12.6	18.3	5.68	12.4	13.6	1.27	31.8	35.6	3.84
Chilliwack	33	11.5	16.9	5.42	13.2	20.2	7.00	13.7	17.7	4.03	13.4	17.6	4.20	8.6	15.3	6.74	27.5	35.8	8.24
Fraser - Cascades	76	11.7	14.8	3.13	13.6	21.6	8.04	12.8	10.6	-2.21	16.2	14.5	1.69	15.2	16.9	1.70	32.3	36.9	4.58
Vancouver	39	11.7	14.2	2.47	13.9	15.8	1.98	14.1	13.9	-0.20	9.9	9.8	0.19	20.0	22.5	2.50	34.5	37.0	2.53
Cariboo - Chilcotin	77	12.0	16.6	4.66	8.6	19.8	11.25	9.9	17.6	7.74	9.6	19.4	9.76	9.8	14.9	5.15	27.1	37.6	10.47
Nechako Lakes	91	16.8	20.3	3.46	10.7	12.5	1.77	13.4	12.7	-0.65	8.7	22.5	13.83	8.5	15.7	7.14	28.3	38.8	10.49
Saanich	63	9.7	14.6	4.94	13.9	15.9	2.04	8.2	12.5	4.37	9.9	26.7	16.87	9.9	10.7	0.81	25.7	40.9	15.19
Prince Rupert	52	26.3	20.8	-5.97	15.7	25.9	10.19	14.3	19.8	5.45	16.5	31.0	14.47	25.1	29.4	4.00	40.2	48.7	8.55
Haide Gweli/Queen Charlotte	50	18.0	24.1	6.02	14.8	12.7	-2.10	19.0	21.8	2.55	24.6	29.1	4.52	18.0	15.2	-2.84	31.1	51.9	20.75
Gold Trail	74	16.9	27.6	11.55	16.1	36.7	20.61	11.5	27.6	16.08	6.4	14.4	8.03	12.0	27.6	15.53	29.6	54.1	24.48



EDI Data Table

SD 38 Richmond



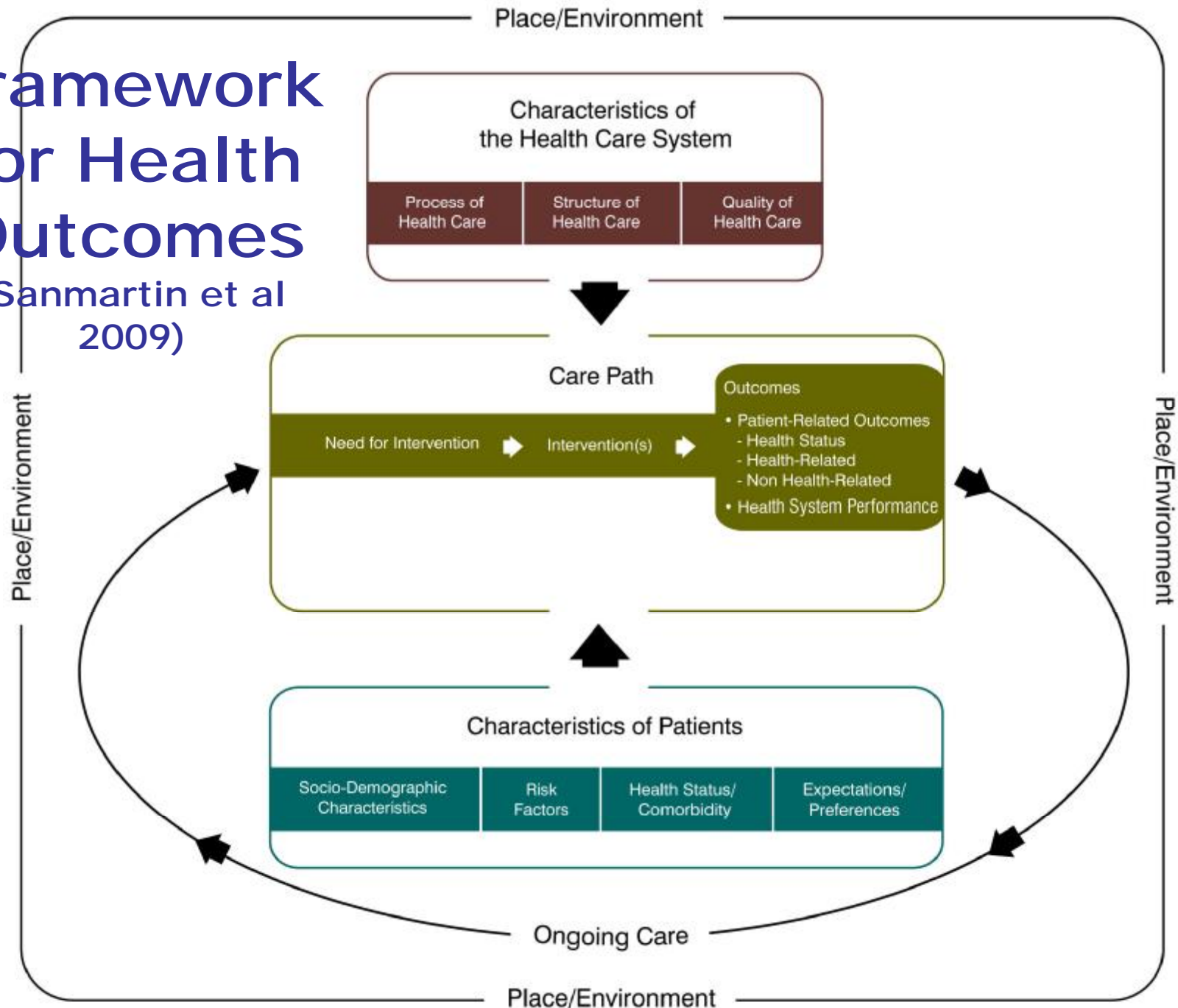
SD 38	EDI Count			Physical Health & Well-being			Social Competence			Emotional Maturity			Language & Cognitive Dvpt.			Communication Skills			Vulnerable 1+		
	W1	W2	08-09	W1	W2	08-09	W1	W2	08-09	W1	W2	08-09	W1	W2	08-09	W1	W2	08-09	W1	W2	08-09
Seafair	119	106	141	10.9	9.3	9.3	16.8	14.0	12.8	8.4	7.4	12.8	7.6	5.6	7.2	9.2	15.0	10.5	26.9	25.9	22.0
Shellmont	103	115	102	11.7	5.3	11.8	9.8	12.2	11.8	8.9	8.7	7.0	4.9	9.5	13.7	10.5	15.0	14.7	23.3	25.2	22.5
Hamilton	54	67	53	7.4	9.7	15.1	14.8	16.1	13.7	16.7	9.7	9.4	9.3	4.5	3.8	13.0	17.9	9.4	29.6	29.0	27.6
Steveston	195	200	167	6.2	6.4	9.0	5.2	5.9	11.4	10.3	7.5	10.3	6.2	5.4	9.1	9.2	10.5	14.4	19.0	24.1	24.0
Blundell	115	107	111	7.8	5.9	9.1	14.0	17.6	11.7	9.6	10.9	10.8	13.0	4.0	4.6	14.9	18.8	15.3	30.4	30.4	27.0
East Richmond	44	52	96	6.8	3.5	6.2	25.0	11.5	13.3	22.7	19.2	15.5	18.2	5.5	8.2	13.9	10.5	12.2	40.9	34.6	29.6
Broadmoor	177	148	150	4.0	6.8	9.7	9.7	12.9	15.1	8.8	12.5	10.7	8.7	6.7	8.7	11.5	18.6	19.3	23.6	22.7	30.0
Thompson	177	173	134	7.5	4.1	6.7	19.2	8.9	13.5	6.8	5.7	12.7	12.4	9.5	7.5	17.7	22.3	24.6	15.4	28.5	31.3
Cambie	100	114	89	7.0	8.8	15.7	26.0	15.8	12.4	17.2	18.4	12.4	15.1	12.3	7.9	20.0	17.5	13.5	40.0	35.1	37.1
City Centre	277	200	217	8.2	5.5	11.1	13.7	13.0	22.7	12.5	11.5	14.4	11.4	6.5	6.5	19.8	20.7	18.9	34.0	34.5	38.7
Bridgeport/Sea Isl.	111	104	85	12.6	11.5	14.1	16.2	16.3	24.7	16.2	15.5	20.0	16.4	14.4	15.3	15.3	22.1	22.4	33.3	34.6	40.0

Notes:
08-09+ includes results from 07-08.

Source:
2008-2009 EDI (HELP - Human Early Learning Partnership)

Framework for Health Outcomes

(Sanmartin et al 2009)



Vision – Policy-Relevant, Coherent, Integrated Health Information System

