

Ontario's Health Links: Measuring Success

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Outline

- I. Introduction & Objective
- II. Approach
- III. Findings
- IV. Discussion

I. Introduction and Objective

- Ontario's Health Links (HL) initiative was launched in January 2013
 - Goal was to “Integrate and improve coordination of care provided to patients with most complex healthcare needs (“top 5%”)”.
 - HLs given flexibility to identify target population and improve integration of care.
 - Each is led by either a primary care organization (e.g., FHT), acute care hospital, or a community group (e.g., CCAC)

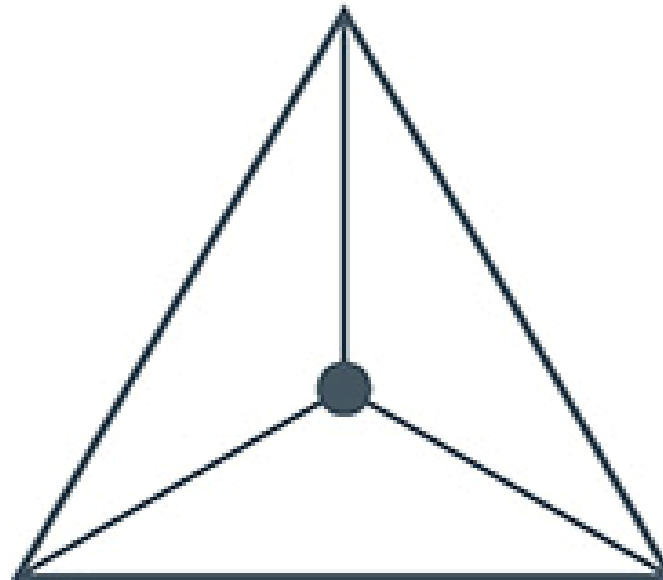
I. Introduction and Objective

- Applied Health Research Question (AHRQ):
What 'value' do Health Links add to the healthcare system?
- Objective: To conduct empirical analysis to assess the performance of Health Links on measurable indicators using health administrative data held at the Institute for Clinical Evaluative Sciences (ICES)

II. Approach: Triple Aim Framework

The IHI Triple Aim

Population Health



Experience of Care

Per Capita Cost

II. Approach: Performance Indicators

Six health system level indicators:

1. Cost:

- Average monthly per capita cost (age/sex std)

2. Health outcomes/population health:

- Acute hospitalization rate/100,000 (age/sex std)

3. Experience:

- ED visit (low acuity)/100,000 (age/sex std)
- Readmission rate/100,000 (for 25 CMG, risk adjusted)
- Individuals with PC follow-up within 7 days acute discharge (%)
- Proportion of individuals rostered to PC MD (age/sex std)

II. Approach: Administrative Data

- Study period: April 1, 2012 – March 31, 2013
- Study population: ON residents as of Apr1,2012
- 2 cohorts of interest:
 - All Ontarians
 - High cost users: Top 5% of healthcare cost users in previous year
- Assign individuals to a geographically defined Health Link (n=54)
 - Through postal code of:
 1. Physician an individual is rostered to (71.5%)
 2. Usual provider of primary care (18.7%)
 3. Home residence (9.8%)

II. Approach: Compared to What?

1. Provincial averages
2. Groups of Health Links by:
 - urban, rural, suburban categories¹
 - neighbourhood socio-economic deprivation

1 Kralj, B. (2009) Measuring Rurality – RIO 2008_BASIC: Methodology and Results. RIO Review Working Group. OMA Economics Dept.
2 Stukel, TA; Glazier, RH, Schultz, SE; Guan, J; Zagorski, BM; Gozdyra, P; and Henry, DA (2013) Multispecialty physician networks in Ontario. Open Medicine, 7(2): e40.

III. Findings

III. Health Link Characteristics



	Full Cohort				Top 5%			
	Ontario	Early HL	Later HL	No HL	Ontario	Early HL	Later HL	No HL
Total Pop. (N)	13,727,824	4,224,381	4,718,210	4,785,233	686,392	212,661	237,545	236,186
Male (%)	49.2	49.0	49.2	49.4	43.9	44.5	43.5	43.7
Age (median)	39	40	39	40	66	66	66	67
Enrolled in PC model	71.4%	71.9%	73.5%	69.0%	78.4%	77.9%	78.9%	78.4%
2+ chronic conditions	26.6%	26.4%	26.7%	26.8%	80.0%	79.2%	79.8%	80.8%
Median total cost 1 yr prior to index date	\$375	\$381	\$375	\$352	\$16,760	\$16,713	\$16,760	\$16,674

III. Performance: Provincial average

Early adopters (n=22)

H=Significantly higher at 5% L=Significantly lower at 5% Top 10% = Better than average Worse than average * = Bottom 10%

LHIN	#	HEALTH LINK (**= early adopter)	Avg Std Monthly Cost (\$/person)	Std Rate Acute Hospitalization (/100,000)	Std Rate ED Visit: Low Acuity (/100,000)	Risk-adj. Estimate (%) CMG Readmission Rate	Crude Estimate Proportion All Individuals PC Follow-Up W/N 7 days Acute Discharge (%)	Std Proportion Rostered to PC Physician (%)
		All Ontario Cohort Average	166	5,618	15,664	15.1	32.3	71.3
		NOT ASSIGNED	159 L	5,526 L	16,997 H	14.9	30.3 L	67.5 L
South West	2	Huron-Perth County**	162 L	6,481 H	38,980 H	13.8	26.1 L	83.0 * H
Waterloo Wellington	3	Guelph**	155 L	5,644	13,480 L	14.7	30.8	72.3 H
HNHB	4	Hamilton Central**	202 * H	6,555 H	16,063	16.3 H	25.9 L	72.2 H
Central West	5	Dufferin**	165 H	6,550 H	20,169 H	13.0 *	27.1 L	80.8 H
Central West	5	North Etobicoke-Milton-West Woodbridge	157 L	5,700 H	7,345 * L	16.6 * H	39.9 H	66.2 L
Mississauga Halton	6	East Mississauga**	149 * L	4,957 * L	9,419 L	13.7 L	37.6 H	67.6 L
Toronto Central	7	Don Valley/Greenwood**	176 H	5,171 L	9,046 L	16.1	32.2	70.7 H
Toronto Central	7	East Toronto**	176 H	5,497	8,936 L	16.6 *	35.1 H	63.7 L
Toronto Central	7	Mid East Toronto**	177 H	5,193 L	10,731 L	14.9	32.8	54.5 * L
Toronto Central	7	Mid-West Toronto**	171 H	5,086 L	9,341 L	15.2	32.0	61.9 L
Central	8	North York Central**	145 * L	4,574 * L	7,997 * L	14.9	35.2 H	68.4 L
Central	8	South Simcoe and Northern York Region**	170 H	5,969 H	14,747 L	15.8	40.4 * H	79.1 H
Central East	9	Peterborough**	179 H	6,103 H	22,745 H	15.0	27.4 L	76.6 H
South East	10	Kingston**	180 H	5,386 L	26,462 H	16.3	33.0	81.2 H
South East	10	Quinte**	177 H	6,007 H	24,598 H	15.4	30.2	80.7 H
South East	10	Rural Hastings**	176 H	5,850 H	33,560 H	14.8	30.8	72.2 H
South East	10	Rural Kingston**	162 L	5,599	30,550 H	15.6	33.6	81.9 H
South East	10	Thousand Islands**	181 H	6,382 H	24,151 H	14.5	30.9	78.2 H
North Simcoe Muskoka	12	Barrie Community**	171 H	5,835 H	15,420 L	14.8	25.7 L	73.9 H
North Simcoe Muskoka	12	South Georgian Bay Community**	157 L	6,065 H	24,373 H	14.7	34.9 H	82.9 * H
North East	13	Cochrane South/Timmins**	203 * H	8,625 * H	55,546 * H	17.6 * H	24.9 * L	68.0 L
North East	13	Terribraming**	194 H	8,807 * H	80,451 * H	15.2	15.1 * L	55.2 * L

III. Rural/Suburban/Urban

	Health Links		
	Early Adopter	Later Adopter	Total (%)
Rural (RIO \geq 40)	6	5	11 (20.4)
Suburban (10 \leq RIO $<$ 40)	8	17	25 (46.3)
Urban (RIO $<$ 10)	8	10	18 (33.3)
Total	22	32	54

- Similar number of rural and urban (early vs later adopter)
- More suburban later adopter HL

III. Comparison of Performance

Aggregate Z-score formula:

Z_i = indicator 'i', below average
is better

Z_j = indicator 'j', above average
is better

x_k = Health Link k 's performance

μ = mean

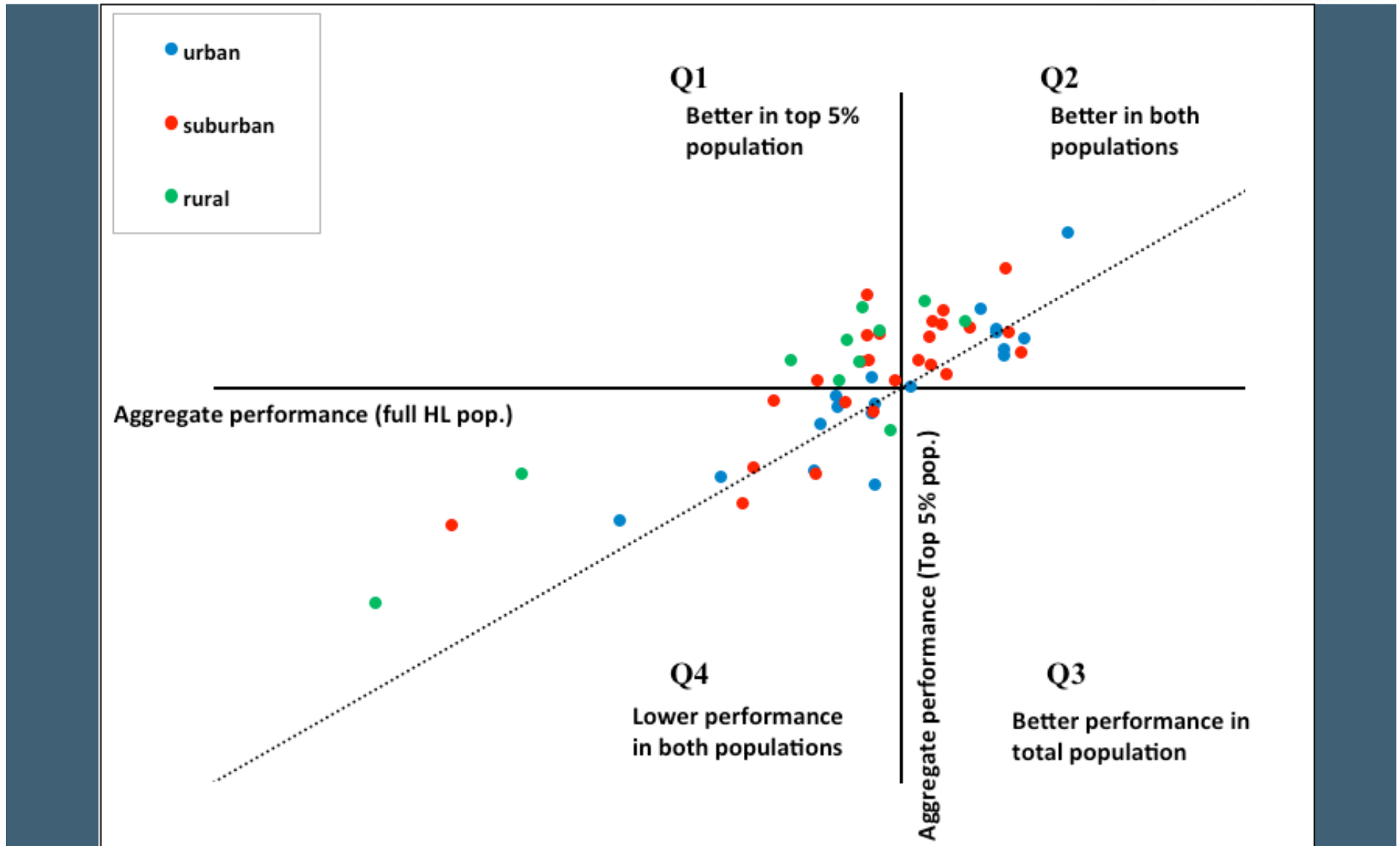
σ = standard deviation

$$Z_i = \frac{x_k - \mu_i}{\sigma_i}$$

$$Z_j = \frac{x_k - \mu_j}{\sigma_j}$$

$$Zscore_{total} = \sum [(-1)Z_i + Z_j]$$

III. Comparison of Performance



III. Socio-economic status

- Stratify results by socio-economic status (average neighbourhood deprivation) in Health Links

III. Socio-economic status

Findings: Baseline performance; early HLs; total population by SES Quintile

HEALTH LINK
early adopter

South Simcoe and N
South West York R
lton

rin**

	Better than average			Worse than average		
	Avg Std Monthly Cost (\$/person)	Std Rate Acute Hospitalization (/100,000)	Std Rate ED Visit: Low Acuity (/100,000)	Risk-adj. Estimate (%) CMG Readmission Rate	Crude Estimate (%) All Ind. PC F/U W/IN 7D Acute Discharge	Std Proportion Rostered to PC Physician (%)
South Simcoe and N	Green	Green	Green	Green	Green	Green
South West York R	Green	Green	Green	Green	Green	Green
lton	Green	Green	Green	Green	Green	Green
rin**	Green	Green	Green	Green	Green	Green
Brantford	Green	Green	Green	Green	Green	Green
Haldimand	Green	Green	Green	Green	Green	Green
Hamilton West	Green	Green	Green	Green	Green	Green
East Mississauga**	Green	Green	Green	Green	Green	Green
Barrie Community**	Green	Green	Green	Green	Green	Green
Muskoka Community	Green	Green	Green	Green	Green	Green
Mid-West Toronto**	Green	Green	Green	Green	Green	Green
North Toronto East	Green	Green	Green	Green	Green	Green
Cambridge	Green	Green	Green	Green	Green	Green
Kitchener-Waterloo	Green	Green	Green	Green	Green	Green
Niagara North East	Green	Green	Green	Green	Green	Green
Orillia Community	Green	Green	Green	Green	Green	Green
South Georgian Bay Community**	Green	Green	Green	Green	Green	Green
Kingston**	Green	Green	Green	Green	Green	Green
Rural Kingston**	Green	Green	Green	Green	Green	Green
Salmon River	Green	Green	Green	Green	Green	Green
Thousand Islands**	Green	Green	Green	Green	Green	Green
Huron-Perth County**	Green	Green	Green	Green	Green	Green
London-Middlesex County	Green	Green	Green	Green	Green	Green
Mid East Toronto**	Green	Green	Green	Green	Green	Green
Peterborough**	Green	Green	Green	Green	Green	Green
Brantford, Brant & Six Nations	Green	Green	Green	Green	Green	Green
Hamilton East	Green	Green	Green	Green	Green	Green
Niagara South East	Green	Green	Green	Green	Green	Green
Niagara South West	Green	Green	Green	Green	Green	Green
Norfolk	Green	Green	Green	Green	Green	Green
North Simcoe Collaborative	Green	Green	Green	Green	Green	Green
City of Thunder Bay	Green	Green	Green	Green	Green	Green
Quinte**	Green	Green	Green	Green	Green	Green
Rideau Tay	Green	Green	Green	Green	Green	Green
South Toronto	Green	Green	Green	Green	Green	Green
North Etobicoke-Malton-West Woodbridge	Green	Green	Green	Green	Green	Green
Prescott-Russell Regional	Green	Green	Green	Green	Green	Green
South Renfrew	Green	Green	Green	Green	Green	Green
Chatham City Centre	Green	Green	Green	Green	Green	Green
Hamilton Central**	Green	Green	Green	Green	Green	Green
Cochrane North	Green	Green	Green	Green	Green	Green
Cochrane South/Timmins**	Green	Green	Green	Green	Green	Green
Temiskaming**	Green	Green	Green	Green	Green	Green
Rural Hastings**	Green	Green	Green	Green	Green	Green
Don Valley/Greenwood**	Green	Green	Green	Green	Green	Green
East Toronto**	Green	Green	Green	Green	Green	Green

High SES

Performance

Low SES

- Health Link performance is highly related to community SES

IV. Discussion: Limitations

Currently cannot:

- Identify which individuals are enrolled and receiving HL services.
- Identify which physicians are associated with each HL and providing HL services.

IV. Discussion: Summary

- HLs vary in their performance on indicators used to measure the value they create.
- Rural/suburban/urban:
 - Urban perform similarly in both cohorts,
 - Rural and suburban better in their Top 5% Cohorts.
- SES findings show relationship between community SES and performance.
 - Individual or community level effect?

THANK YOU!

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