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Ontario's Health Links: Measuring Success

Canadian Association for Health Services and Policy Research

Annual Conference

May 28th, 2015

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Outline

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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)

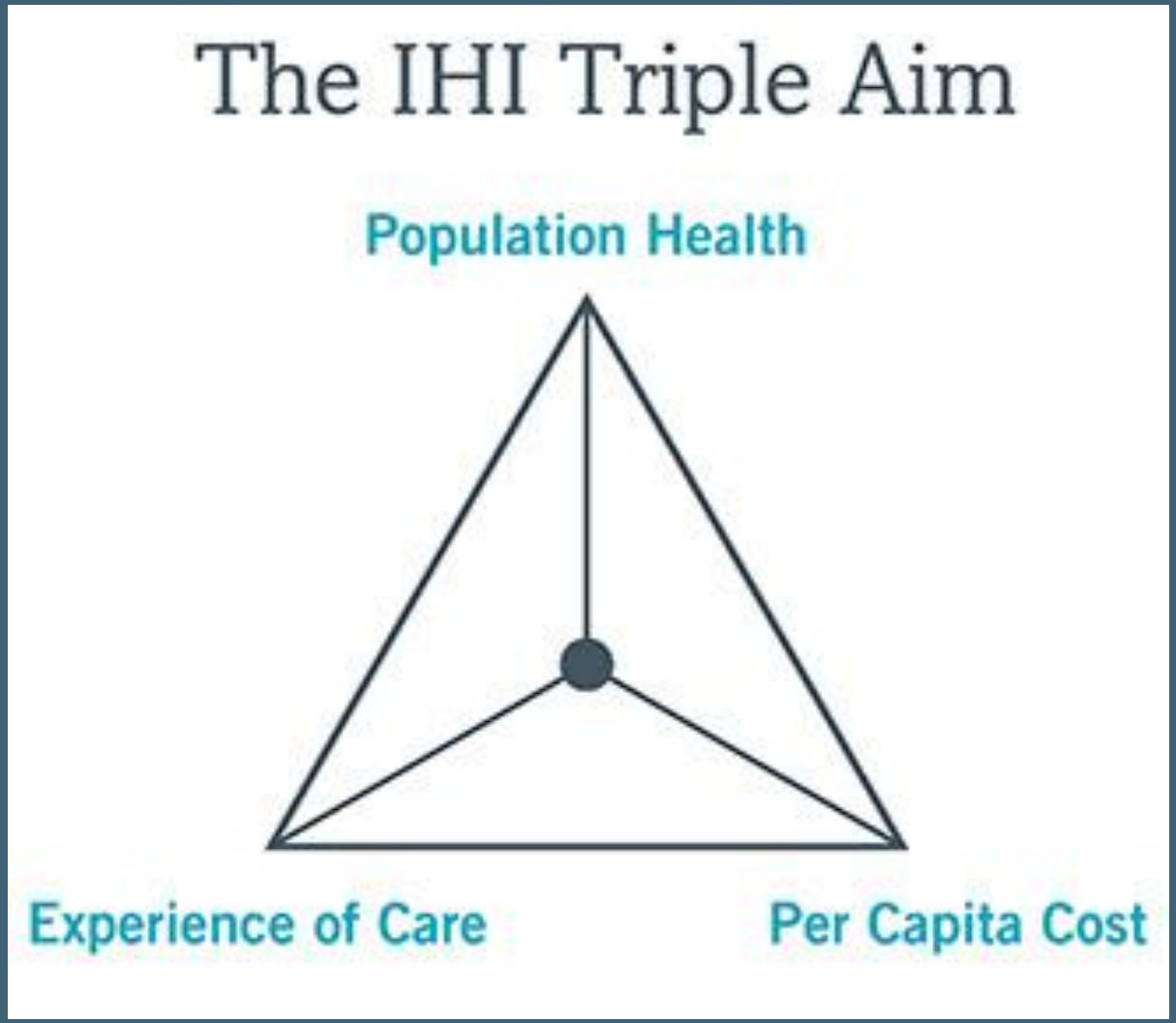
I. Introduction and Objective

- 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



II. Approach: Performance Indicators

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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 categories[1]
   - 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/IN 7 days Acute Discherge (%)		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-Malton-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	24,593	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 Muskok	12	Barrie Community**	171	H	5,835	H	15,420	L	14.8		25.7	L	73.9	H
North Simcoe Muskok	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**	208	* H	8,625	* H	55,546	* H	17.6	* H	24.9	* L	68.0	L
North East	13	Temiskaming**	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≥40)	6	5	11 (20.4)
Suburban (10≤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

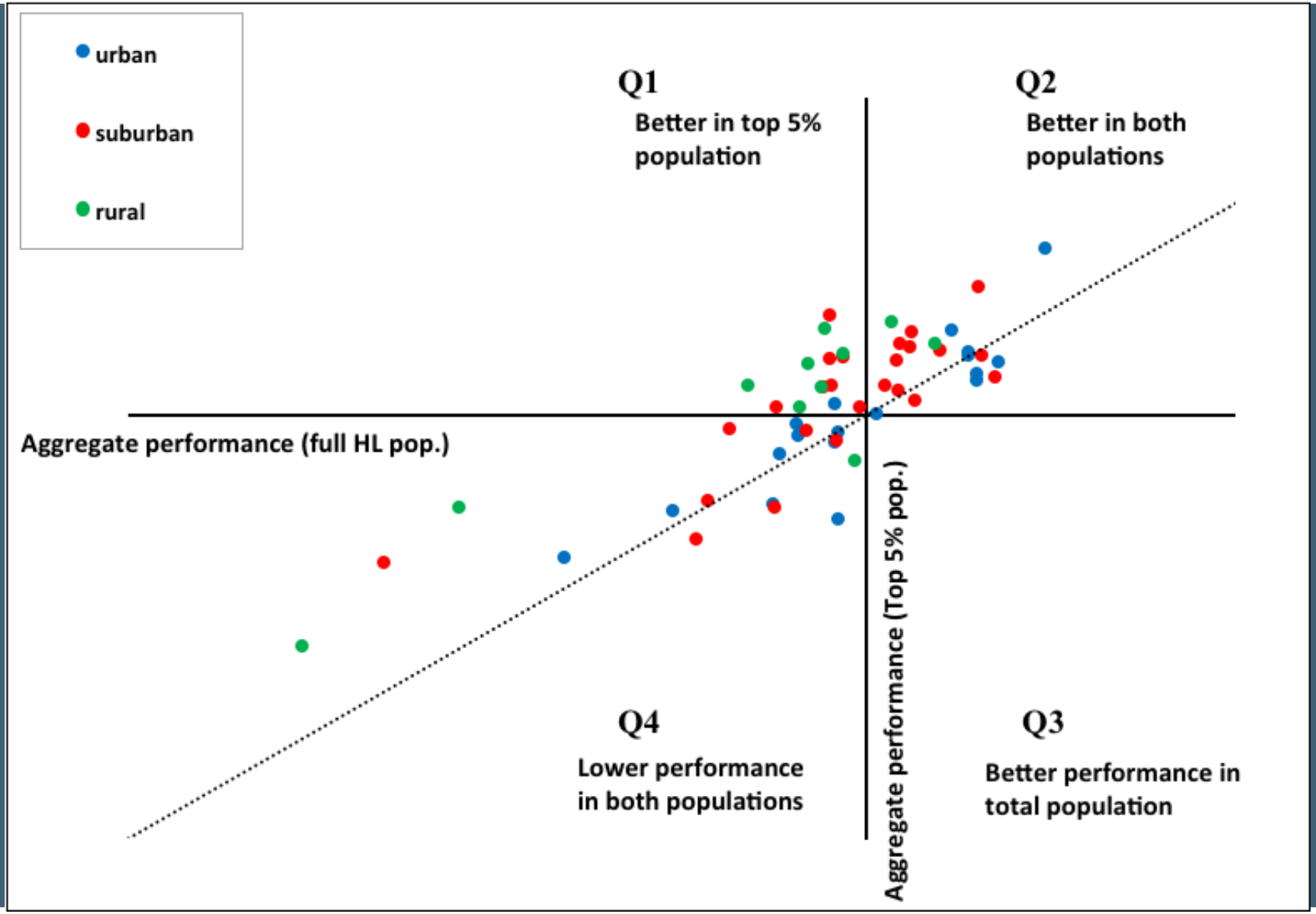
σ = standard deviation

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

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

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

III. Comparison of Performance



III. Socio-economic status

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

III. Socio-economic status

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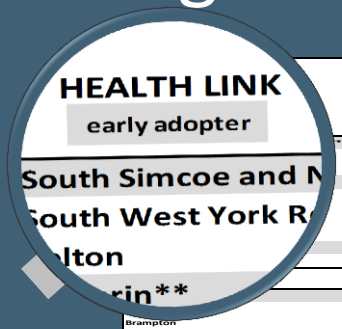
Findings: Baseline performance; early HLs; total population **by SES Quintile**



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 (%)
Brampton						
Haldimand						
Hamilton West						
East Mississauga**						
Barrie Community**						
Muskoka Community						
Mid-West Toronto**						
North Toronto East						
Cambridge						
Kitchener-Waterloo						
Niagara North East						
Orillia Community						
South Georgian Bay Community**						
Kingston**						
Rural Kingston**						
Salmon River						
Thousand Islands**						
Huron-Perth County**						
London-Middlesex County						
Mid East Toronto**						
Peterborough**						
Brantford, Brant & Six Nations						
Hamilton East						
Niagara South East						
Niagara South West						
Norfolk						
North Simcoe Collaborative						
City of Thunder Bay						
Quinte**						
Rideau Tay						
South Toronto						
North Etobicoke-Malton-West Woodbridge						
Prescott-Russell Regional						
South Renfrew						
Chatham City Centre						
Hamilton Central**						
Cochrane North						
Cochrane South/Timmins**						
Temiskaming**						
Rural Hastings**						
Don Valley/Greenwood**						
East Toronto**						

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!

Acknowledgments:

- Goncalo Santos, BSc
- Jennifer Im
- ICES