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Measuring Success

Baseline System Performance of Health Links

HSPRN Symposium

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Overview

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I. Applied Health Research Question (AHRQ)

II. Approach

III. Findings to date

IV. Discussion

Purpose: AHRQ

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What 'value' do Health Links add to the healthcare system?

- Goal of current work: 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)

Approach: Indicator Selection

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	LOWER GROWTH IN HEALTHCARE COSTS Indicator	Admin data definition
1	Average (annual) government costs	HSPRN/ ICES
2	**Average government costs per month alive**	**HSPRN/ ICES**
3	Percent (annual) change in cost	HSPRN/ ICES

	BETTER CARE FOR INDIVIDUALS Indicator	Admin data definition
4	**Acute hospitalization rate**	**APHEO**
5	Acute hosp. days (average length of stay)	HSPRN/ ICES
6	Alternative level of care (ALC) days	MOH-LTC RIS
7	**Readmissions within 30days for selected CMGs**	**MOH-LTC RIS**
8	Mental health & addictions hosp. rate	CIHI
9	Ambulatory Care Sensitive Conditions (ACSC) hosp. rate	MOH-LTC RIS
10	ACSC days (average LOS)	HSPRN/ ICES

Approach: Indicator Selection

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	BETTER CARE FOR INDIVIDUALS (continued) Indicator	Admin data definition
11-12	**Primary care follow-up within 7days discharge for selected CMGs: all individuals;** rostered individuals	**MOH-LTC RIS**
13	Medication reconciliation within 14days of hospital discharge for selected CMGs	HSPRN/ ICES
14-16	**ED Visit Rate**: all; urgent; **low acuity**	**HSPRN/ ICES**
17	Avoidable ED visits for patients with conditions best managed elsewhere	MOH-LTC RIS
18	**Proportion of individuals rostered to primary care physician**	**HSPRN/ ICES**
19	Appropriate care for diabetes (HbA1c, LDL-C, eye exams)	HSPRN/ ICES
20	New LTC admissions with a high/very high MAPLe score	HSPRN/ ICES
21-22	Health related quality of life: Home care and LTC clients	HSPRN/ ICES

	BETTER CARE FOR POPULATIONS Indicator	Admin data definition
	TO BE DETERMINED	

Performance Indicators

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- Six population level indicators:
  1. Average monthly per capita cost (age/sex std)
  2. Acute hospitalization rate/100,000 (age/sex std)
  3. ED visit (low acuity)/100,000 (age/sex std)
  4. Readmission rate/100,000 (for 25 CMG, risk adjusted)
  5. Individuals with PC follow-up within 7 days acute discharge (%)
  6. Proportion of individuals rostered to PC MD (age/sex std)

Approach: Administrative Data

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- Study period: FY2012
- Study population: ON residents as of Apr1,2012
- 3 cohorts of interest:
  - All Ontarians
  - High cost users: Top 5% of healthcare cost users in previous year
  - Individuals living with multi-morbidities (2 or more, of 16 chronic conditions)
- Assign individuals to a 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%)

Approach: Compared to What?

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1. Provincial averages
2. Comparable Health Links: urban, rural, suburban categories[1]
3. Informal Physician Networks: PHYSNETs[2] (n=78)

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.

Findings to date

Health Link Characteristics

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	Full Cohort				Top 5%			
	Ontario	Early HL	Other HL	No HL	Ontario	Early HL	Other 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%
Resides in LTC	0.6%	0.6%	0.7%	0.6%	12.4%	11.9%	12.8%	12.4%
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

Pockets of Performance

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

HEALTH LINK	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 Discharge (%)		Std Proportion Rostered to PC Physician (%)	
All ON Cohort Ave	164		5,586		16,123		15.1		32.3		71.4	
NOT ASSIGNED	159	L	5,526	L	16,997	H	14.9		30.3	L	67.5	L
A1	145	L	4,574	L	7,997	L	14.9		35.2	H	68.5	L
A2	170	H	5,969	H	14,747	L	15.8		40.4	H	79.1	H
A3	150	L	4,889	L	8,067	L	14.6		39.3	H	66.7	L
B1	179	H	6,103	H	22,745	H	15.0		27.4	L	76.6	H
C1	157	L	5,555		11,464	L	12.8		41.8	H	74.9	H
C2	150	L	5,614		7,323	L	14.8		42.1	H	68.9	L
C3	154	L	5,657		8,105	L	15.2		41.5	H	73.6	H
C4	165	H	6,550	H	20,169	H	13.0		27.1	L	80.8	H
C5	157	L	5,700	H	7,345	L	16.6	* H	39.9	H	66.2	L
D1	152	L	5,007	L	16,157		14.1		31.0		73.5	H
D2	182	H	6,053	H	32,696	H	14.6		33.6		78.7	H
D3	188	H	6,401	H	60,804	* H	12.2		28.7		64.8	L
D4	164	H	5,876	H	16,526	H	15.4		31.4		80.4	H
E1	193	H	6,659	H	28,793	H	13.7		29.0		80.3	H
F1	179	H	6,669	H	15,832	L	16.2		30.1		78.0	H
F2	156	L	5,368	L	10,227	L	15.2		35.9	H	80.8	H
F3	185	H	6,533	H	38,379	H	14.3		33.4		81.9	H
F4	202	* H	6,555	H	16,063		16.3	H	25.9	L	72.2	H
F5	187	H	6,131	H	16,394	H	14.8		25.4	L	75.3	H
F6	182	H	5,751	H	14,225	L	15.3		28.9	L	80.5	H
F7	178	H	6,203	H	14,954	L	15.0		37.6	H	72.3	H
F8	159	L	5,870	H	19,384	H	15.4		42.2	H	84.5	H

Avg Cost, Hospitalizations, ED Visits

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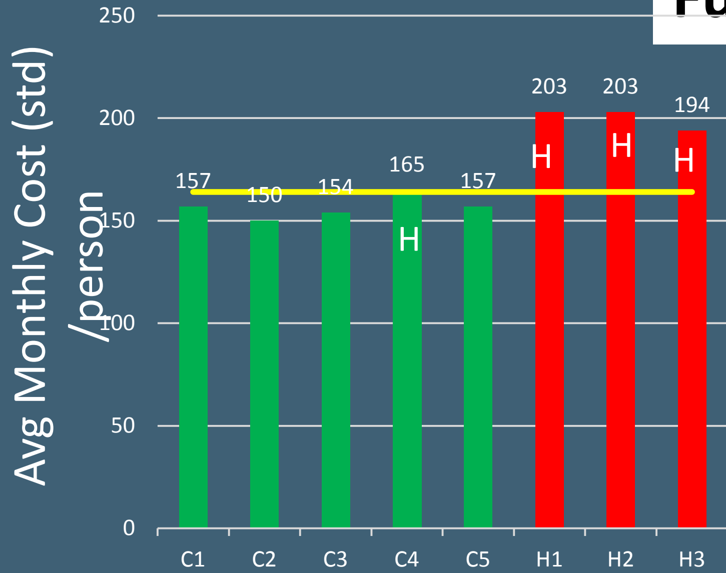
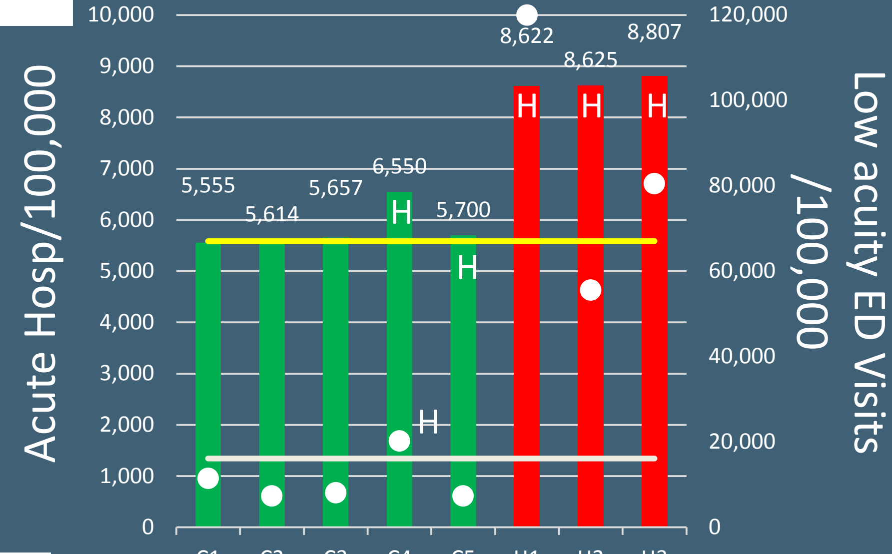
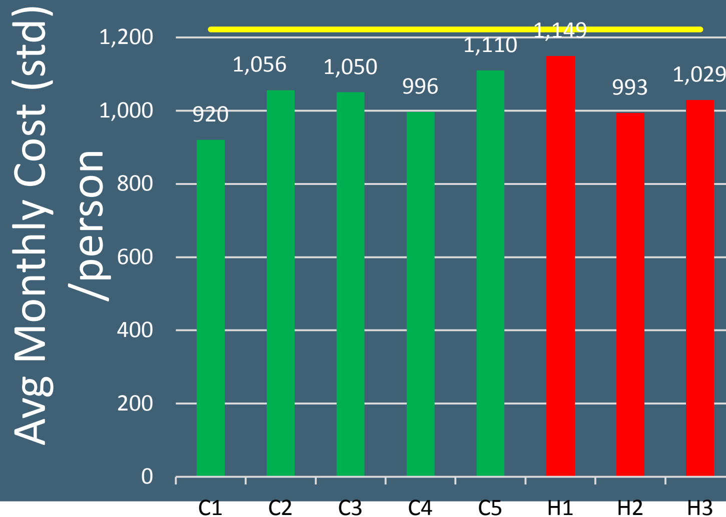
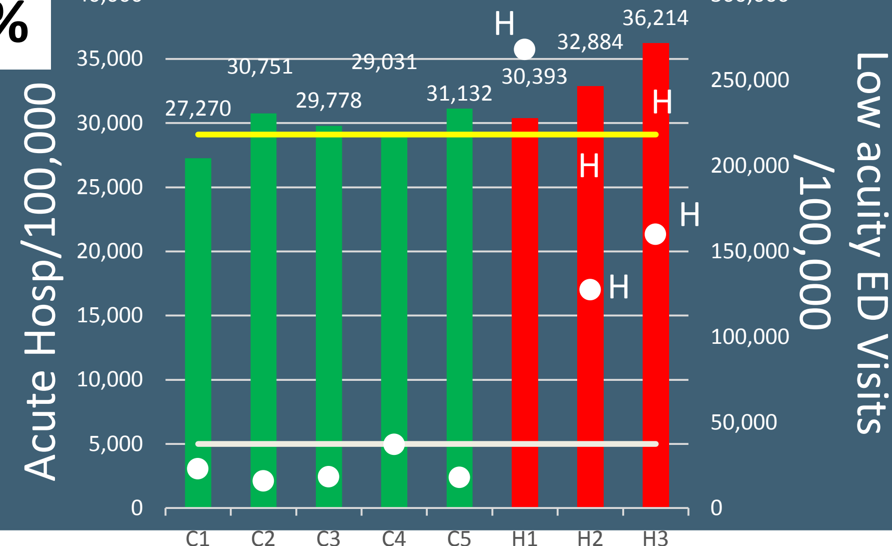
Full Cohort





Top 5%





Readmissions (Risk-adj)

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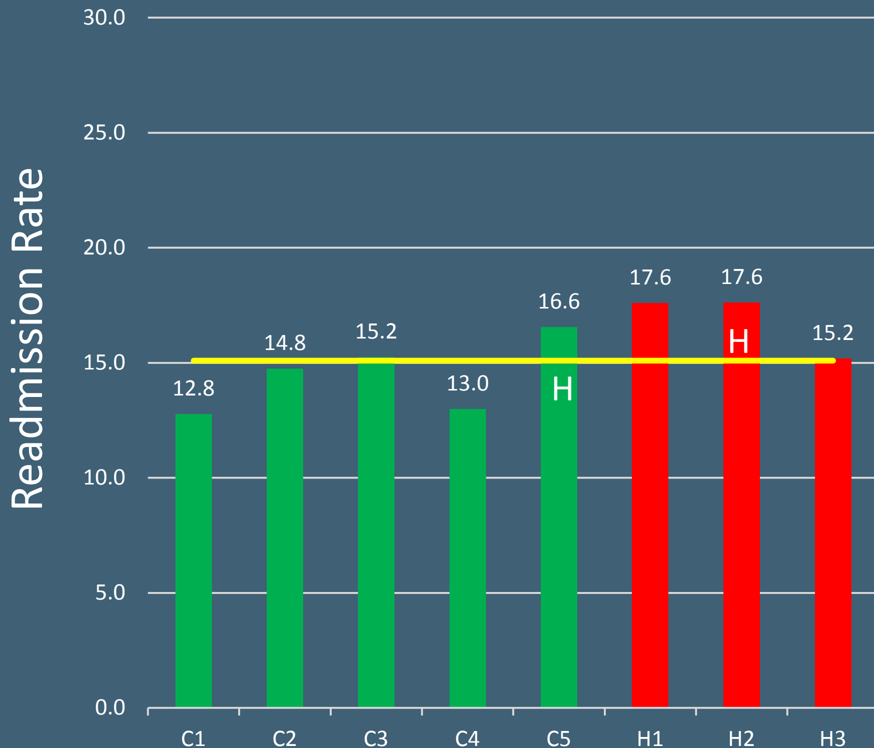
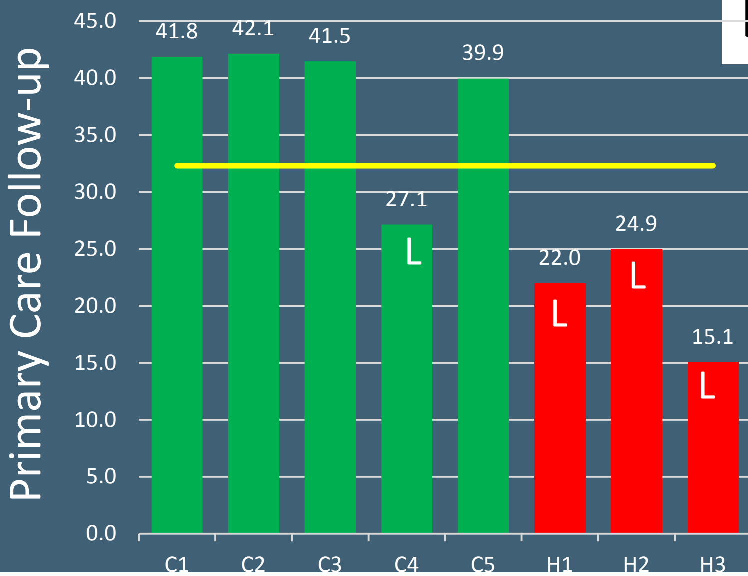


Primary Care Follow-up & Rostering

Full Cohort



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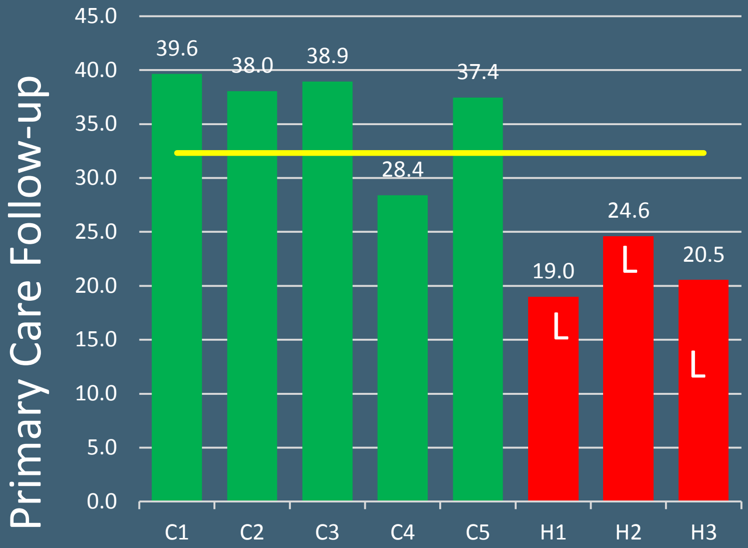

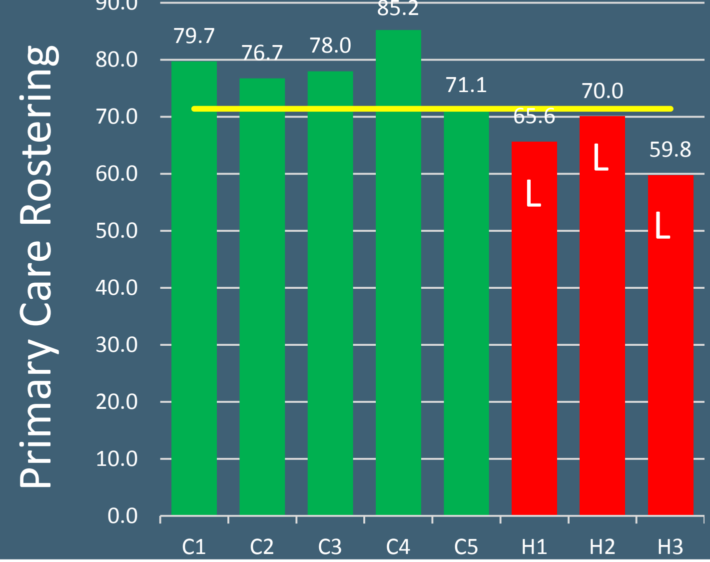

Rural/Suburban/Urban

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	Health Links			Physician Networks
	Early Adopter	Later Adopter	Total	
Rural (RIO≥40)	6	5	11	11
Suburban (10≤RIO<40)	8	17	25	23
Urban (RIO<10)	8	10	18	44
Total	22	32	54	78

- Similar rural and suburban
- Fewer urban HL than urban PN

Comparison of Performance

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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

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

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

$$Z - score_{total} = \sum (-1)Z_i + Z_j$$

Comparison of Performance

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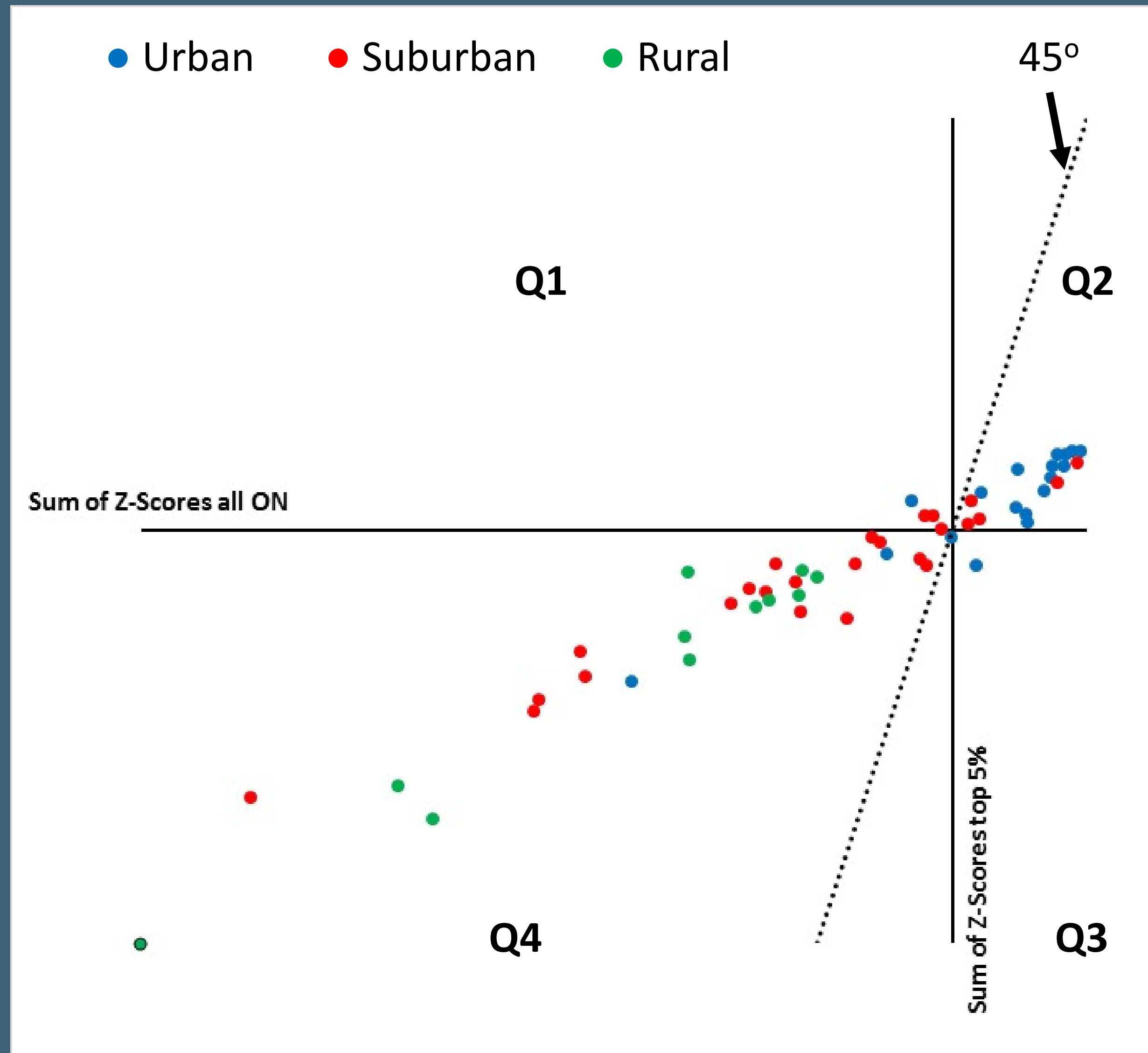
Compared to cohort <u>provincial average</u>:

Q1 = Top 5% better, all ON worse

Q2 = Both cohorts better

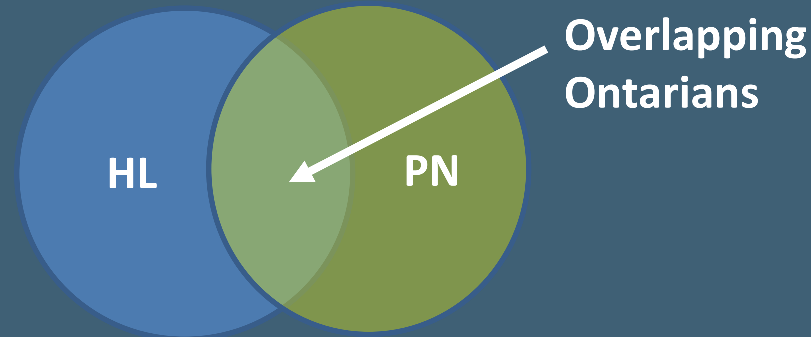
Q3 = All ON better, top 5% worse

Q4 = Worse in both cohorts



Health Links & Physician Networks

- PNs describe actual current patient care patterns, HL are geographically bounded.
- Overlap of Ontarians associated with HL & PN:
  - Overlap up to 80%
  - More than one PN can overlap with a HL.
  - HLs overlapped with between 1 and 6 PNs.
  - Number of Ontarians in overlapping "areas" range from 7031 to 422,003
- ACO-type population definition: HL or PNs?



Limitations

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Currently cannot:

- Identify which individuals are actually receiving HL services.
- Identify which physicians are associated with each HL and providing HL services.
- Examine overlap between PN and HL in terms of physicians providing healthcare services.

Summary

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- Health Links vary in their performance on indicators used to measure the value they create.
- 'Pockets' of high performance and low performance.
  - Even differences between HLs within the same LHIN
- Rural/suburban/urban:
  - Urban doing well compared to provincial average.
  - R/S/U perform differently when comparing the 2 cohorts:
    - Urban better with Full Cohort,
    - Rural and suburban better in their Top 5% Cohorts.

Next Steps

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- Rate ratios to compare HL and PN
- Population level indicators
  - BMI, tobacco use, physical activity
- Comparison of HL over time