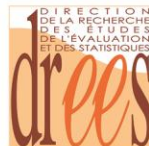


Ministère des Affaires sociales, de la Santé et des Droits des femmes - Salle Pierre Laroque

Colloque international

" L'ÉVALUATION ÉCONOMIQUE
et la RECHERCHE sur les SERVICES de SANTÉ "

Lundi 1^{er} décembre 2014





UNIVERSITY OF TORONTO
DALLA LANA SCHOOL OF PUBLIC HEALTH



Institute of Health Policy, Management & Evaluation
UNIVERSITY OF TORONTO



Using Claims Data to Study Outcomes and Costs of Healthcare in Ontario, Canada

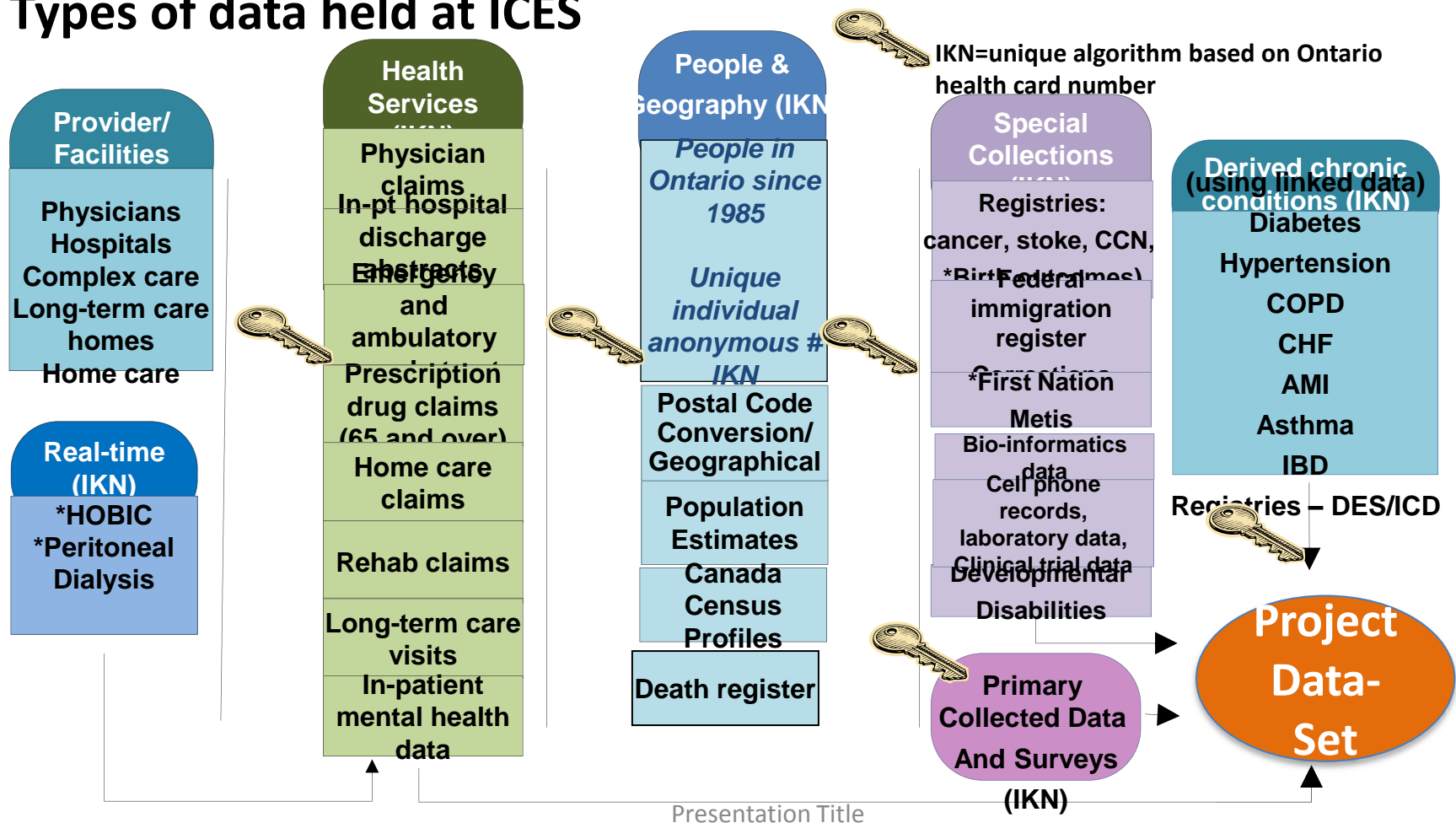
DAVID HENRY,
ICES,
UNIVERSITY OF TORONTO,
CANADA



Principal steward of health data in Ontario

- Non-profit corporation
- Independent Board of Directors
- Prescribed entity
- Principal data steward for Ontario (13.5m)
- Receives data from multiple sources
- Data are linked anonymously at the level of the individual
- The data are used for many studies including extensive costing studies and cost-effectiveness analyses

Types of data held at ICES



Using administrative data to understand the economics of health-care delivery

- Self-organizing physician networks
- High cost users of the healthcare system

Self-organizing physician networks

- Traditionally, physicians in Ontario have been paid by fee for service
- Fee for service rewards volume of work, not quality or care
- The objective of this projects was to determine whether physicians paid by fee for service organise themselves into informal networks and how well do these networks function

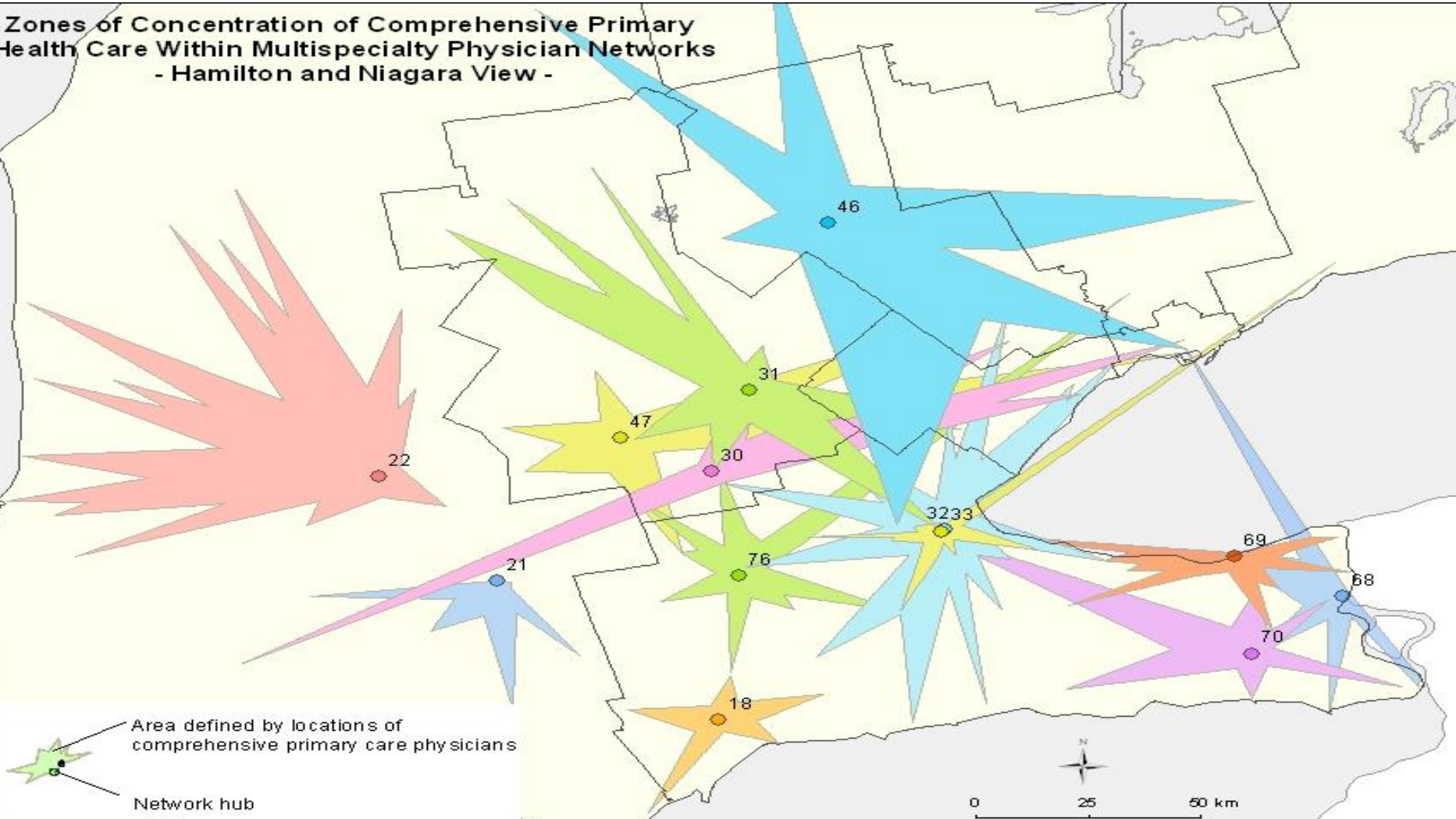
Creating linkage across sectors

- Ontario residents linked to a usual provider of care (Primary Care)
- Specialists with inpatient work linked with the acute care hospital where they provided the most inpatient services.
- Specialists with no inpatient work and all PC physicians were linked with the acute care hospital where most of their ambulatory patient panel was admitted for non-maternal, medical admissions.
- Patients linked with hospital of their UPC physician.
- Provider clusters (N=181) = acute care hospital + linked physicians + linked patients.
- All residents with health claims and virtually all active physicians (99%) were linked.

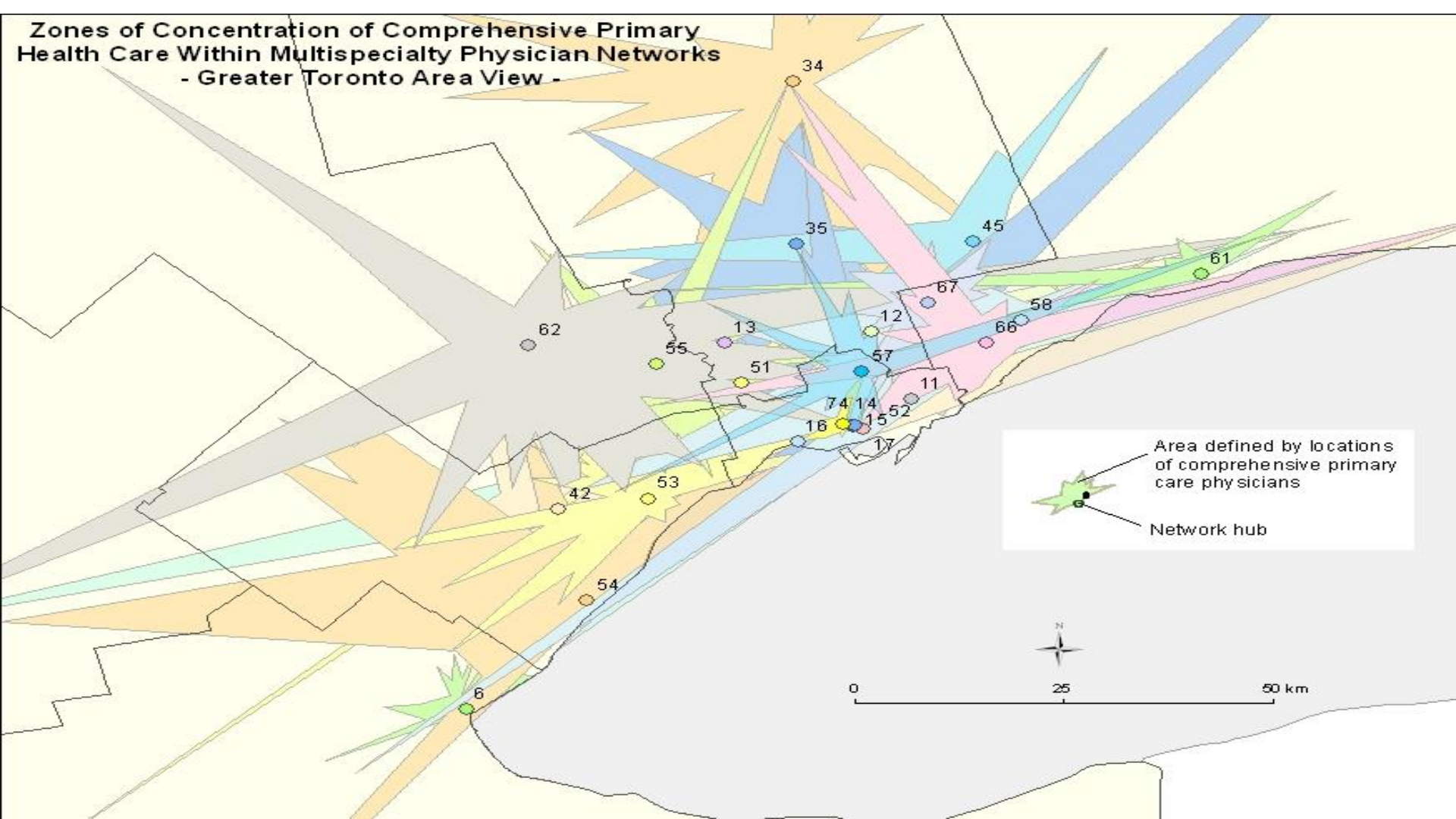
Creating networks from provider clusters

- Provider cluster: patient-physician-hospital triad
- Compute N patients, N docs, N PC docs for each provider cluster.
- Compute admission, physician, and PC loyalty, and travel time (minutes) of each provider cluster to top 4 other provider clusters.
- Aggregate provider clusters to networks of >50K patients using GIS mapping based on shared patients (high loyalty), close proximity, respecting governance.
- Include at least one medium/ large hospital (except satellites)
- Network: One or more linked provider clusters.
- Satellite network: collection of small rural provider clusters, geographically distant from the large hospital upon which they depend for complex services. Populations served and local services differ from large urban networks.

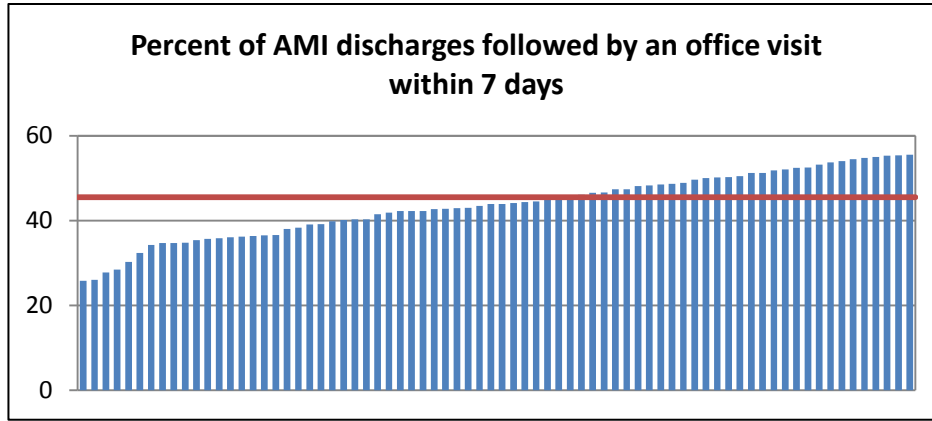
Zones of Concentration of Comprehensive Primary Health Care Within Multispecialty Physician Networks - Hamilton and Niagara View -



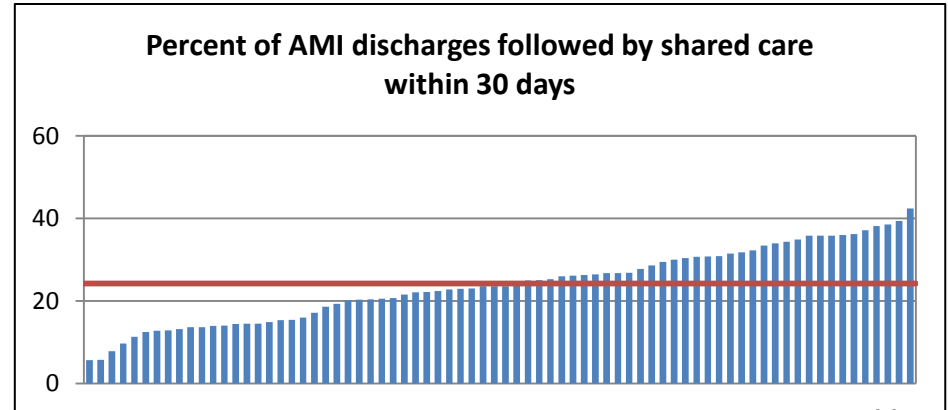
Zones of Concentration of Comprehensive Primary Health Care Within Multispecialty Physician Networks - Greater Toronto Area View -



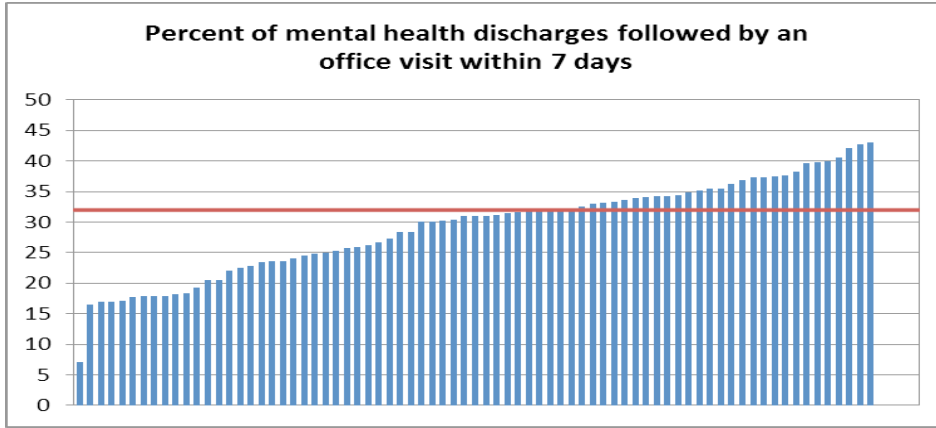
Myocardial Infarction : % with Follow-Up Visit Post-discharge



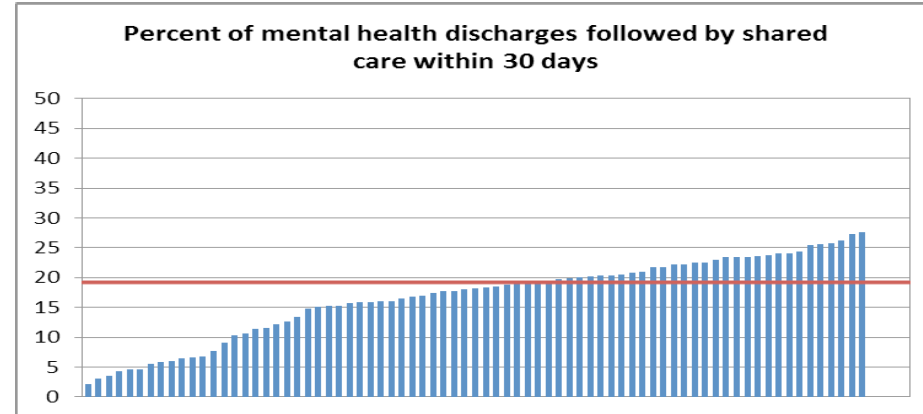
P1	Percent with follow-up				
	10 th	25 th	50 th	75 th	90 th
Any follow-up within 7 days	35.4	39.8	45.5	51.2	54.7
Shared care within 30 days	13.9	18.6	24.2	30.9	35.8



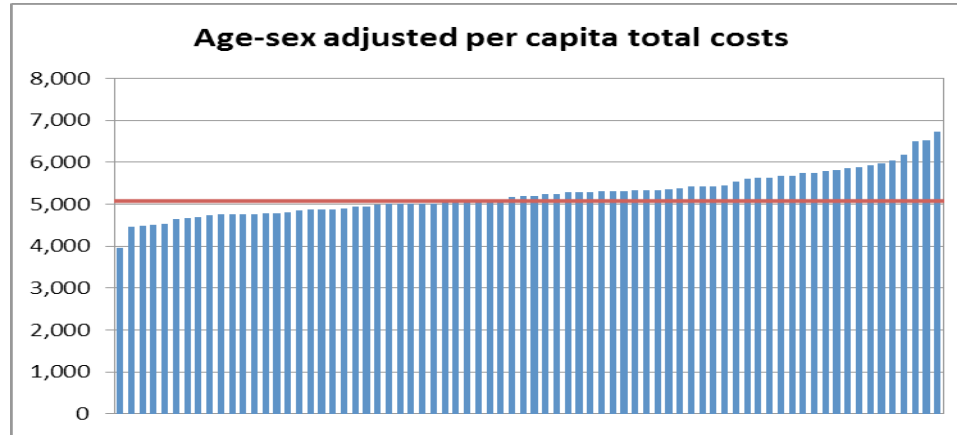
Psychiatric discharges: % with Follow-Up Visit Post-Discharge



P6	Percent with office visit				
	10 th	25 th	50 th	75 th	90 th
Any follow-up within 7 days	19.2	26.6	32.0	34.9	39.6
Shared care within 30 days	9.1	16.5	19.2	22.5	24.1



Age-Sex Adjusted Per Capita Total Costs



	Age-sex adjusted per capita total costs				
	10 th	25 th	50 th	75 th	90 th
Total Cost	4,515	4,760	5,079	5,355	5,739

Health policy interest in Ontario: Improvement in delivery of primary care

- Main Ontario policy interest is using the networks for primary care (PC) quality improvement, and dealing with inter-sectoral challenges like hospital readmissions.
- The networks form a much-needed unit of measurement, cost analysis, accountability and local action for quality improvement.
- Forms the conceptual basis of Ontario Health Links


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Transforming the Health Care System

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Transforming Ontario's Health Care System

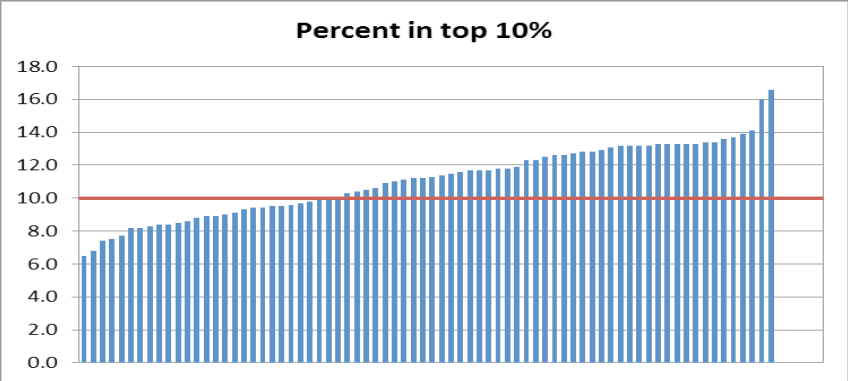
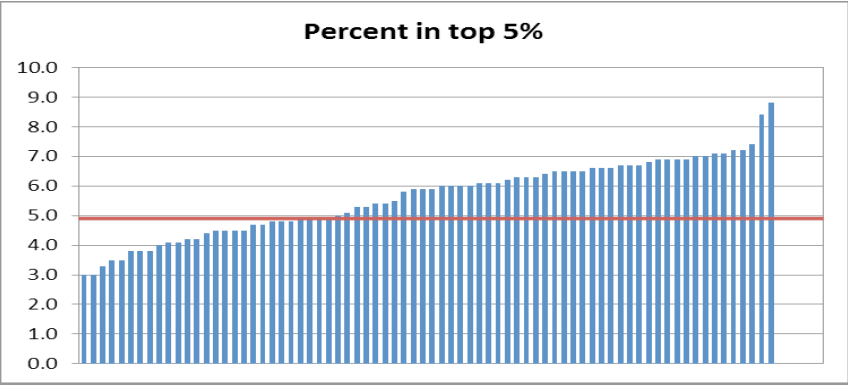
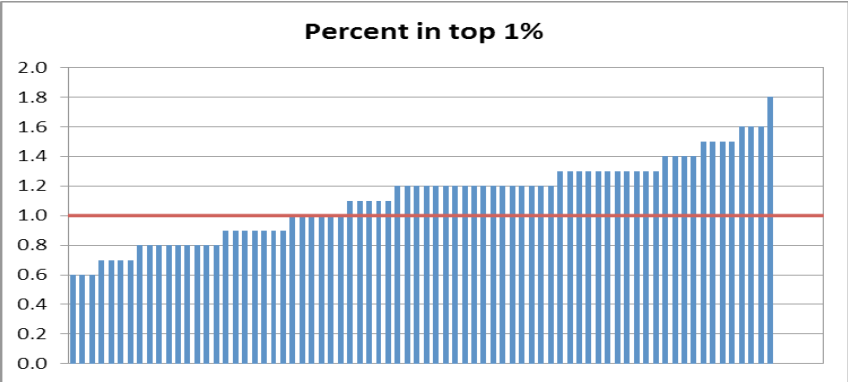
Community Health Links provide coordinated, efficient and effective care to patients with complex needs

Five per cent of patients account for two-thirds of health care costs. These are most often patients with multiple, complex conditions. When the hospital, the family doctor, the long-term care home, community organizations and others work as a team, the patient receives better, more coordinated care. Providers will design a care plan for each patient and work together with patients and their families to ensure they receive the care they need. For the patient it means they will :

- Have an individualized, coordinated plan



Percent of Network Residents within top 1%, 5% and 10% of Provincial Costs



	Age-sex adjusted per capita costs				
	10 th	25 th	50 th	75 th	90 th
Top 1%	0.70	0.80	1.00	1.20	1.30
Top 5%	3.50	4.10	5.00	6.00	6.70
Top 10%	7.50	8.50	10.00	11.60	13.20

Identifying High Cost Users

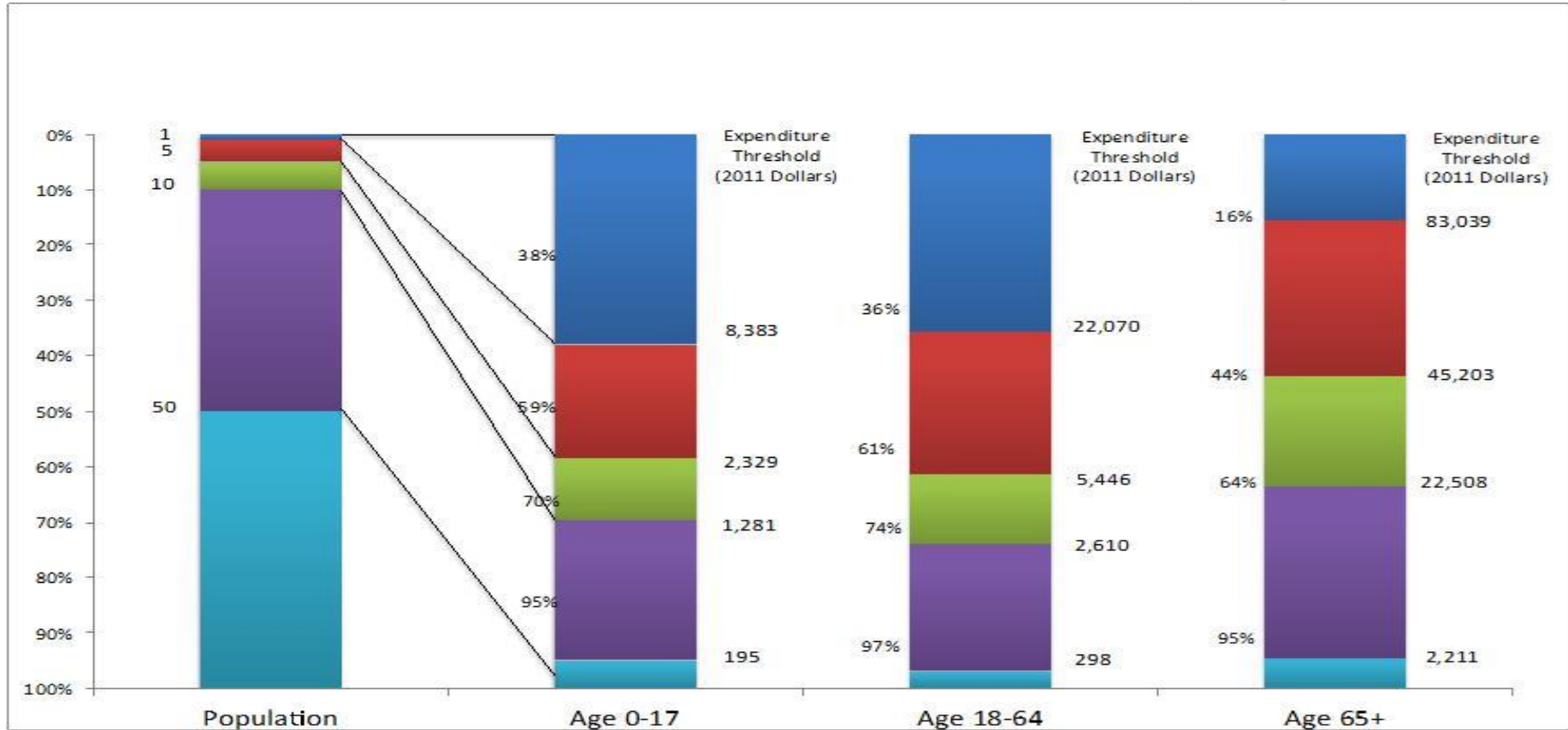
Overview of Methods

- The study population consisted of 14.9 million individuals with a recorded age under 105 years who were alive on April 1st of any of the three study years 2009, 2010, 2011 and who had a valid Ontario health card at any time between April 1, 2009 and March 21, 2012.
- Administrative databases, linked at the level of each eligible Ontario resident tracked all service encounters

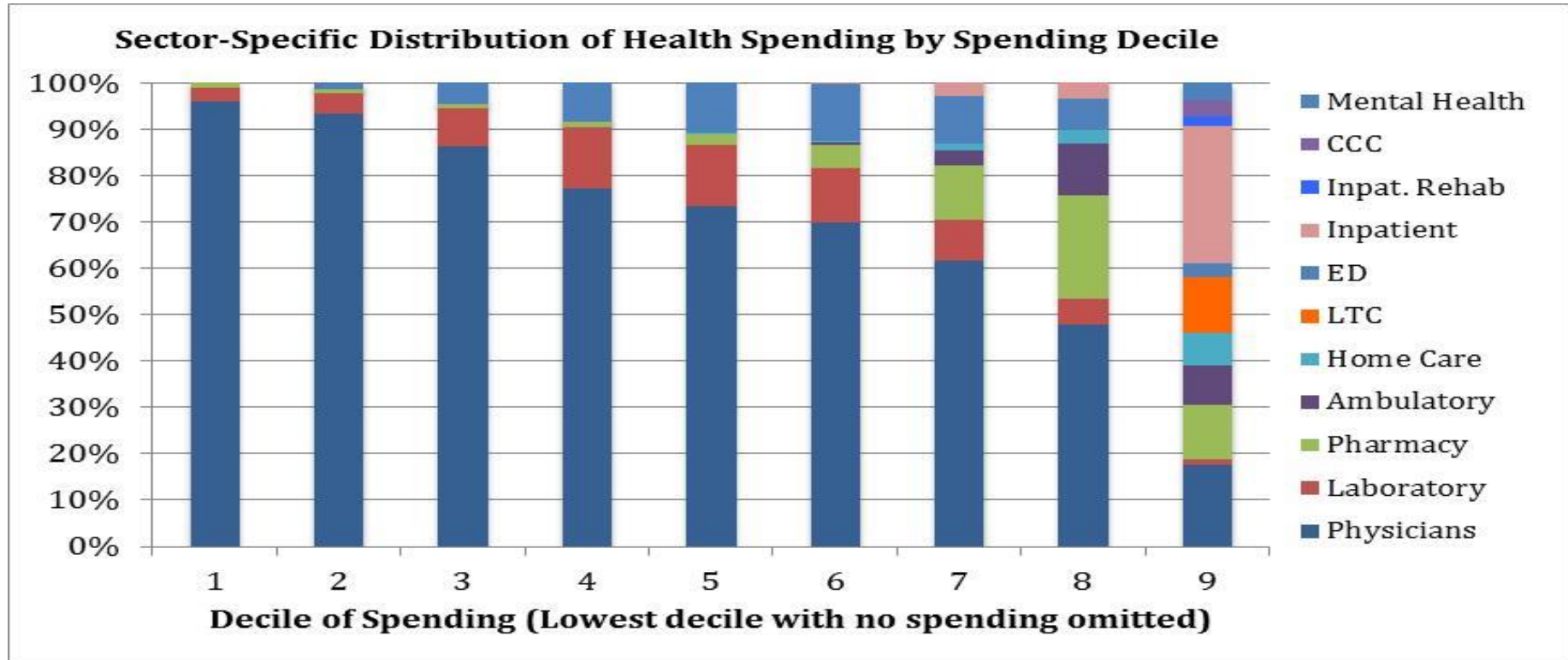
Types of costs: linked at individual level

- Admissions to hospitals
- National Ambulatory Care Reporting System (same day surgery, emergency department, oncology and dialysis visits)
- Ontario Mental Health Reporting system (inpatients)
- Physician visits
- Alternate payment plans
- laboratory claims
- Home Care Database
- Ontario Drug Plan for prescriptions dispensed to individuals eligible for social assistance and for people aged 65 and over
- Assistive devices.
- Long term care costs.

Distribution of Healthcare Costs by Age



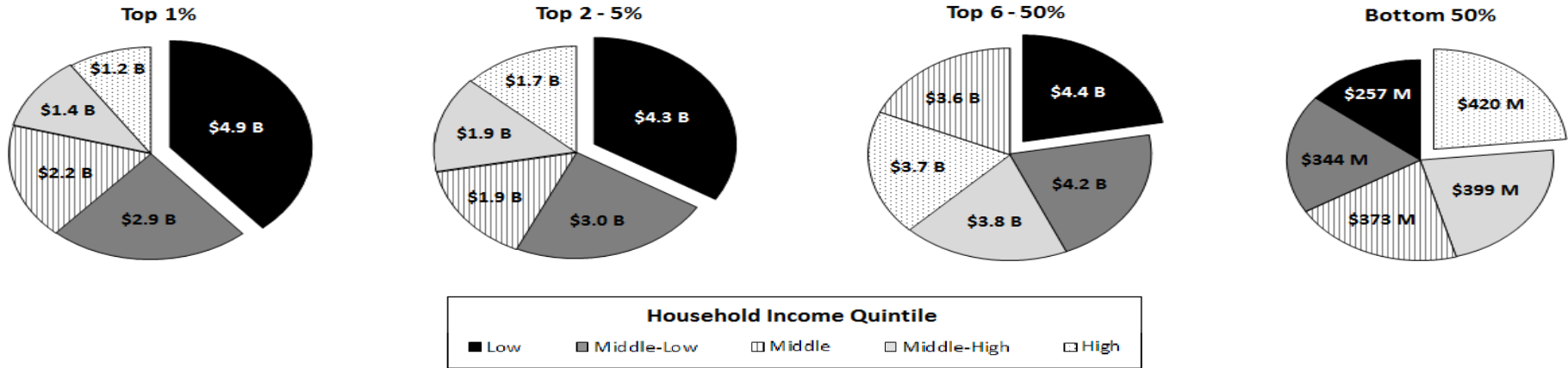
Breakdown of Overall costs in each Decile of Spending



Linkage of administrative data to
survey data enables study of
additional risk factors

Household Income Analysis

Distribution of Total Health Care Spending Across Income and Utilization Groups



Among Ontario's HCU, costs are disproportionately incurred by those with low household income

Health Behaviors (smoking, alcohol, diet, physical activity)

- Adjusted for age, heavy smoker was associated with a 70% increased risk of ever becoming a HCU;
- Physically inactivity & occasional drinker associated with 30% increase in risk
- Obese individuals had a 70% increase in the odds of being a HCU (OR = 1.71 (95% CI: 1.59–1.83)), in the age-adjusted model, compared to normal weight individuals

Conclusions

- Comprehensive individually-linked administrative data have a major role in the investigation of health system dynamics
- Even under fee for service doctors organise themselves into informal (subconscious) networks
- Self-organised networks may form the basis of comprehensive care models
- Individual level costing of health care provision provides important insights into major healthcare cost drivers and may be useful to identify groups in whom better care at lower cost is achievable