# Multispecialty Physician Networks: Improved Quality and Accountability - The "Health Care Neighbourhood"

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# Large multispecialty provider group practices: what we know

- Multispecialty networks of hospitals, physicians and other providers can improve efficiency (higher quality & lower costs) for chronic disease (CD)*
- Coordinated and integrated care
- Strong primary care (PC) systems
- CD management/ prevention programs
- Engagement of multiple health professionals (interdisciplinary teams)
- Excellent information systems
- Focus on longitudinal efficiency

* Crosson, Commonwealth Fund, 2009

# Health system efficiency: what we know

- Efficiency = higher quality & lower costs & reduced disparities.
- Longitudinal efficiency = total experience of a given population over a fixed period of time to capture aggregate quality, resource inputs, outcomes.
- Limited policy success:
  - Pay for performance (P4P) (narrow focus)
  - Individual physician profiling.
  - Technical quality measures (discrete, episodic, silo care).
- Requires shared accountability among providers/hospitals for patients, and reorganization of health delivery and payment systems.

# Multispecialty physician networks: Conceptual framework

- Focus is chronic disease vs. acute care
- Provides most appropriate locus of shared accountability & performance measurement for CD patients (Goldilocks problem)
  - LHINs (too big)
  - Individual providers (too small)
  - Primary Care (PC) groups (do not include specialists, hospitals)
  - Multispecialty provider networks (just right)
- Longitudinal efficiency addresses fragmentation of CD care
- Alignment of hospitals, specialists, PC physicians and other providers to promote local input and planning, integration, shared accountability
- Platform for Accountable Care Organizations (ACO) – system of care that collectively serves large panel of patients, can be held accountable for quality, performance measurement, ability to implement system QI

# "Revealing" Ontario virtual physician networks ("self-organizing systems")

Create/reveal virtual multispecialty physician networks using health administrative data over FY08-10.

Based on existing patient flow to physicians and hospitals where their patients are admitted.

Consist of defined patient populations including 500+ chronic disease patients per network.

New organizational unit for improving quality

Measure network longitudinal efficiency for CD population.

Determine structural characteristics, physician specialty and PC team mix, chronic disease strategies of high efficiency networks.

Stukel et al, Open Medicine, 2013

# Creating linkage across sectors

- Ontario residents linked to a UPC (usual provider of primary care) based hierarchically on (i) rostering to a PC physician (71%), (ii) core PC services (27%), and (iii) any physician services (2%) over 3 years.
- 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.

# Core PC services: physician feecodes

1. A001 – Minor Assessment
2. A003 – General Assessment
3. A007 – Intermediate Assessment
4. A903 – Pre-operative Assessment
5. E075 – Geriatric General Assessment Premium
6. G212 – Allergy injection alone
7. G271 – Anticoagulant supervision
8. G372 – Injection with visit
9. G373 – Injection sole reason
10. G365 – Pap Test
11. G538 – Immunization with visit
12. G539 – Immunization - sole reason
13. G590 – Influenza immunization - with visit
14. G591 – Influenza immunization - sole reason
15. K005 – Primary Mental Health Care
16. K013 – Counseling – Individual Care
17. K017 – Annual Health Exam – Child after second birthday
18. P004 – Minor prenatal assessment

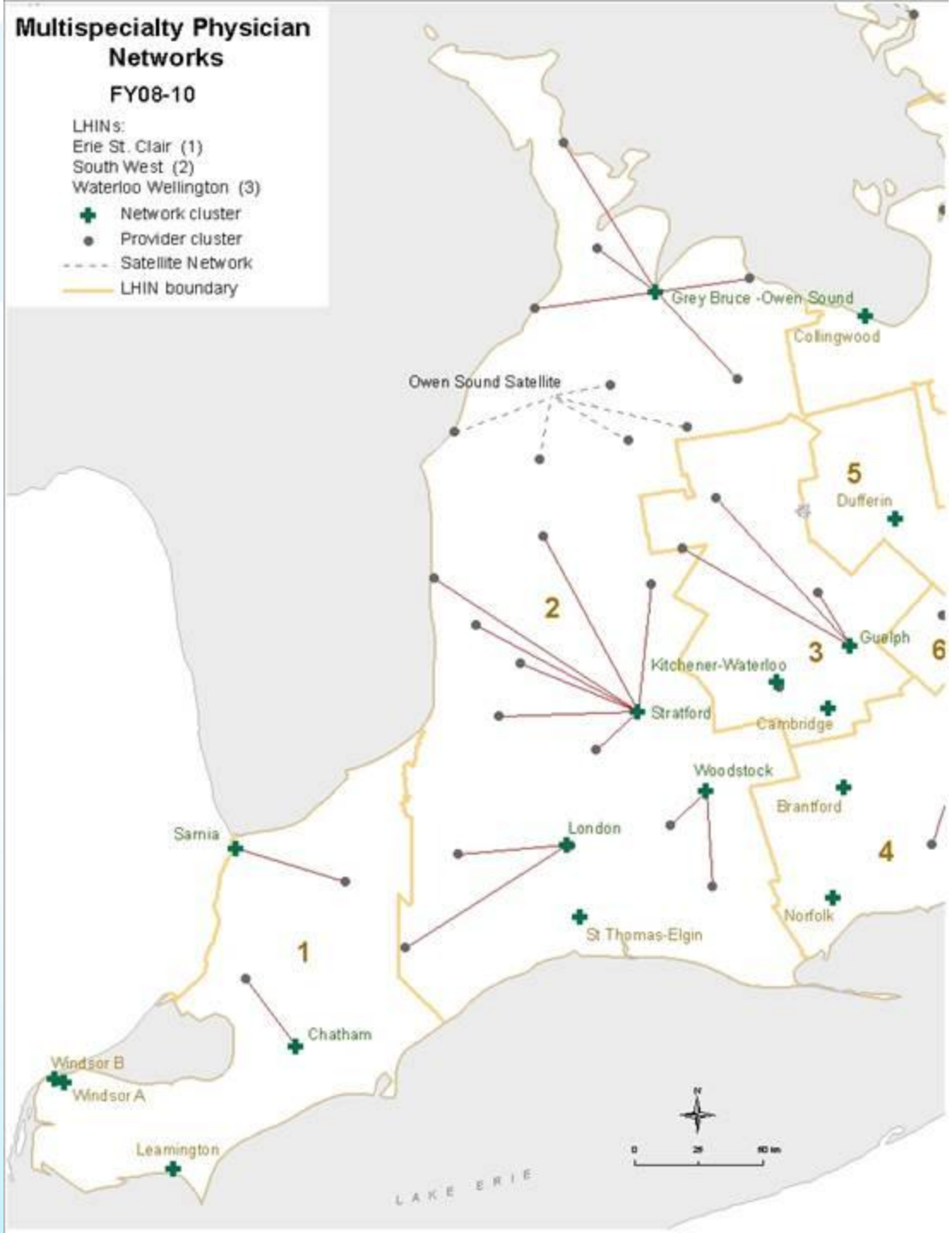
# Physician linkage to hospitals, by specialty

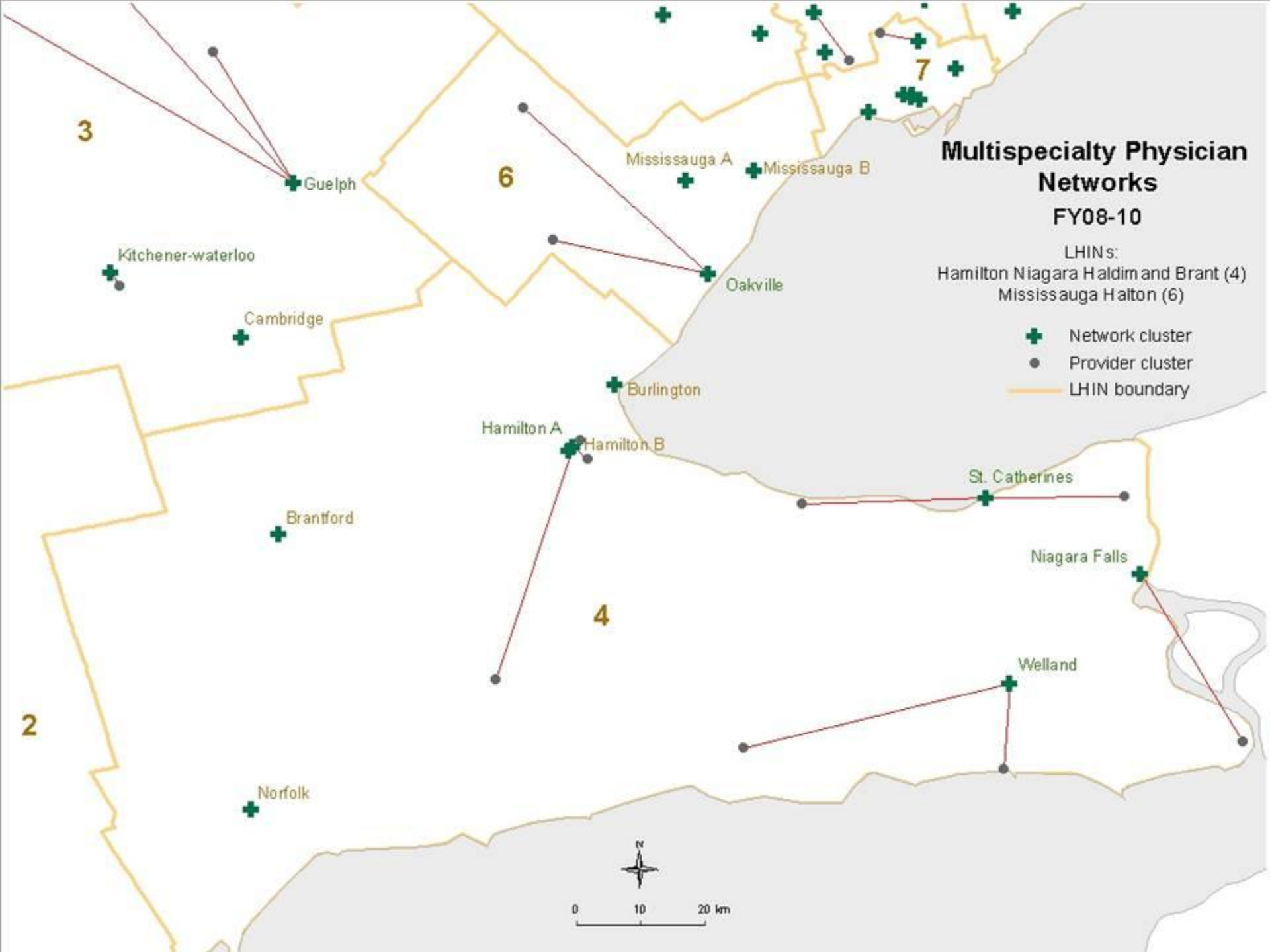
| | Physician-Hospital Linkage Method | | | | | |
|---|---|---|---|---|---|---|
| | Hospital Activity | | Patient Flow | | None | |
| | N | % | N | % | N | % |
| **Overall** | 13,673 | 49.8% | 13,424 | 49.0% | 340 | 1.2% |
| **Anesthesia** | 1,254 | 98.7% | 15 | 1.2% | 2 | 0.2% |
| **Cardiothoracic Surgery** | 98 | 100% | | | | |
| **Cardiology** | 607 | 98.4% | 8 | 1.3% | 2 | 0.3% |
| **Endocrinology** | 172 | 95.6% | 8 | 4.4% | 6 | 0.8% |
| **GP/FP** | | | 11,419 | 98.1% | 224 | 1.9% |
| **Internal Medicine** | 1,128 | 97.2% | 28 | 2.4% | 5 | 0.4% |
| **Pediatrics** | 839 | 94.3% | 48 | 5.4% | 3 | 0.3% |
| **Psychiatry** | 1,652 | 79.1% | 419 | 20.1% | 17 | 0.8% |

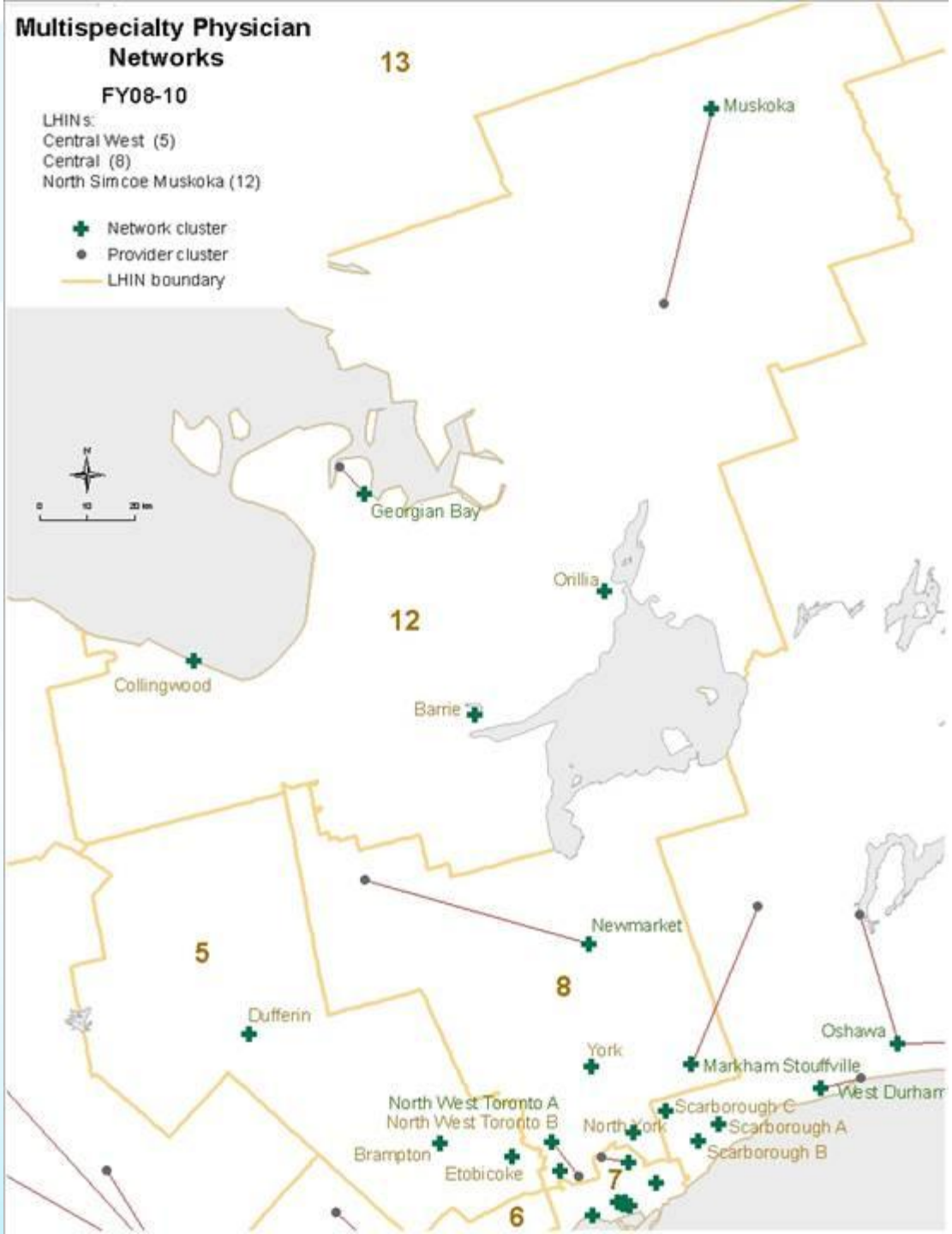
# Creating networks from provider clusters

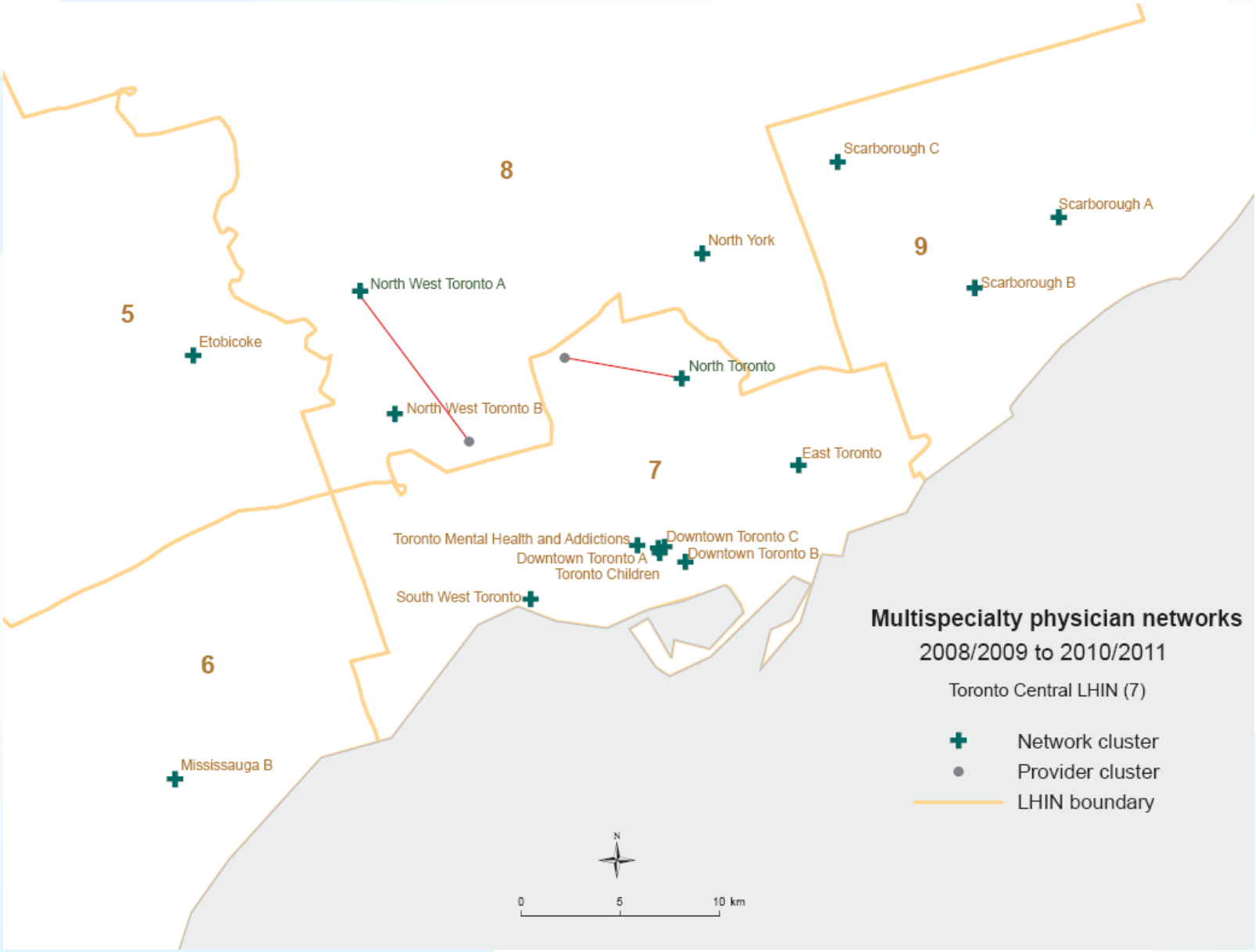
- Provider cluster: patient-physician-hospital triad.
- Compute N patients, N docs, N PC docs for each provider cluster.
- Compute admission, physician, and PC loyalty, and travel time (minutes) of each provider cluster to top 4 other provider clusters.
- Aggregate provider clusters to networks of >50K patients using GIS mapping based on shared patients (high loyalty), close proximity, respecting governance.
- Include at least one medium/ large hospital (except satellites)

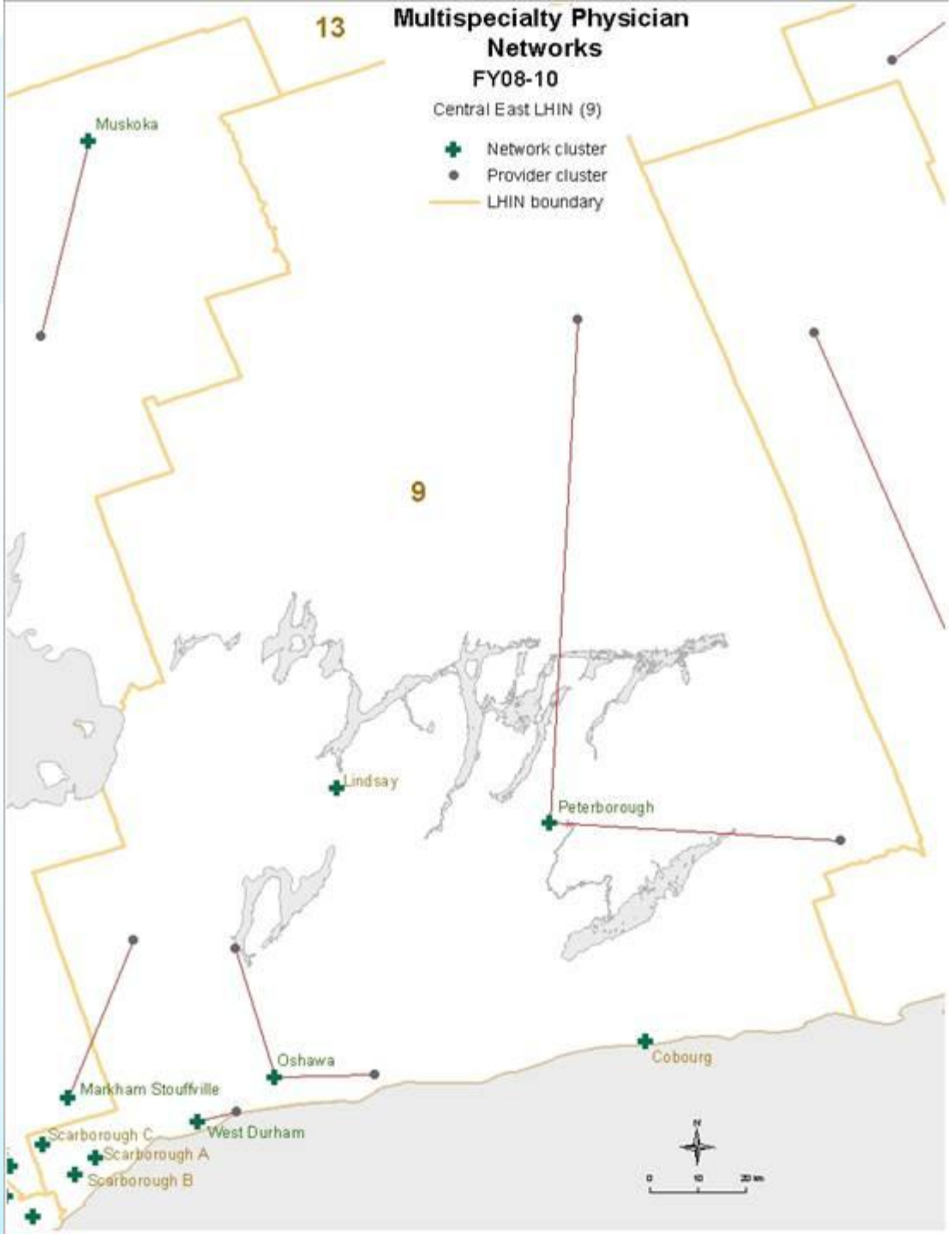
- Network: One or more linked provider clusters.
- Satellite network: collection of small rural provider clusters, geographically distant from the large hospital upon which they depend for complex services. Populations served and local services differ from large urban networks.

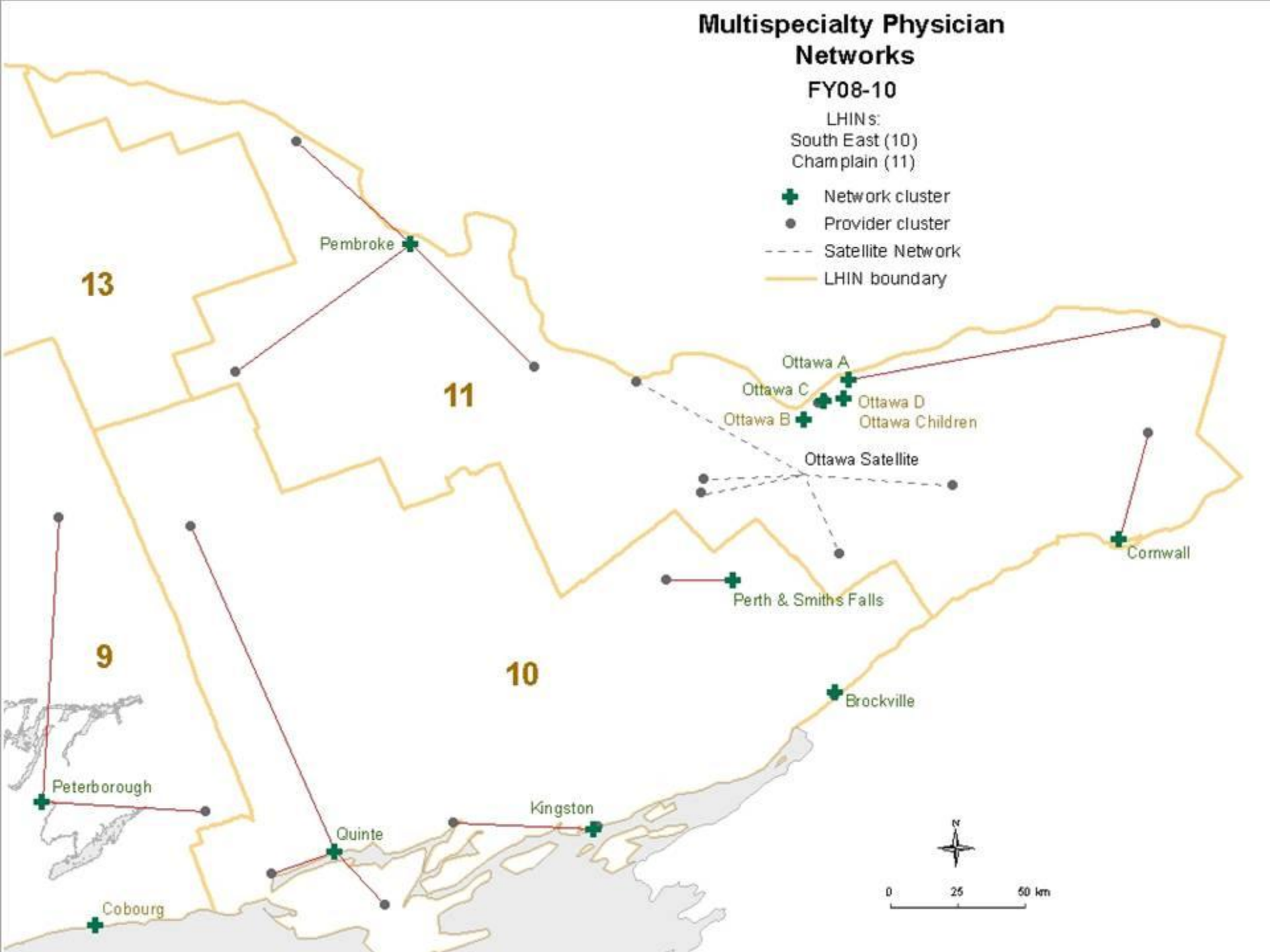

Multispecialty Physician Networks
FY08-10
LHINs:
Erie St. Clair (1)
South West (2)
Waterloo Wellington (3)
Network cluster
Provider cluster
Satellite Network
LHIN boundary
Grey Bruce -Owen Sound
Collingwood
Owen Sound Satellite
5
Dufferin
2
3
Guelph
6
Kitchener-Waterloo
Stratford
Cambridge
Woodstock
Brantford
Sarnia
London
4
Norfolk
St Thomas-Elgin
1
Chatham
Windsor B
Windsor A
Leamington
LAKE ERIE

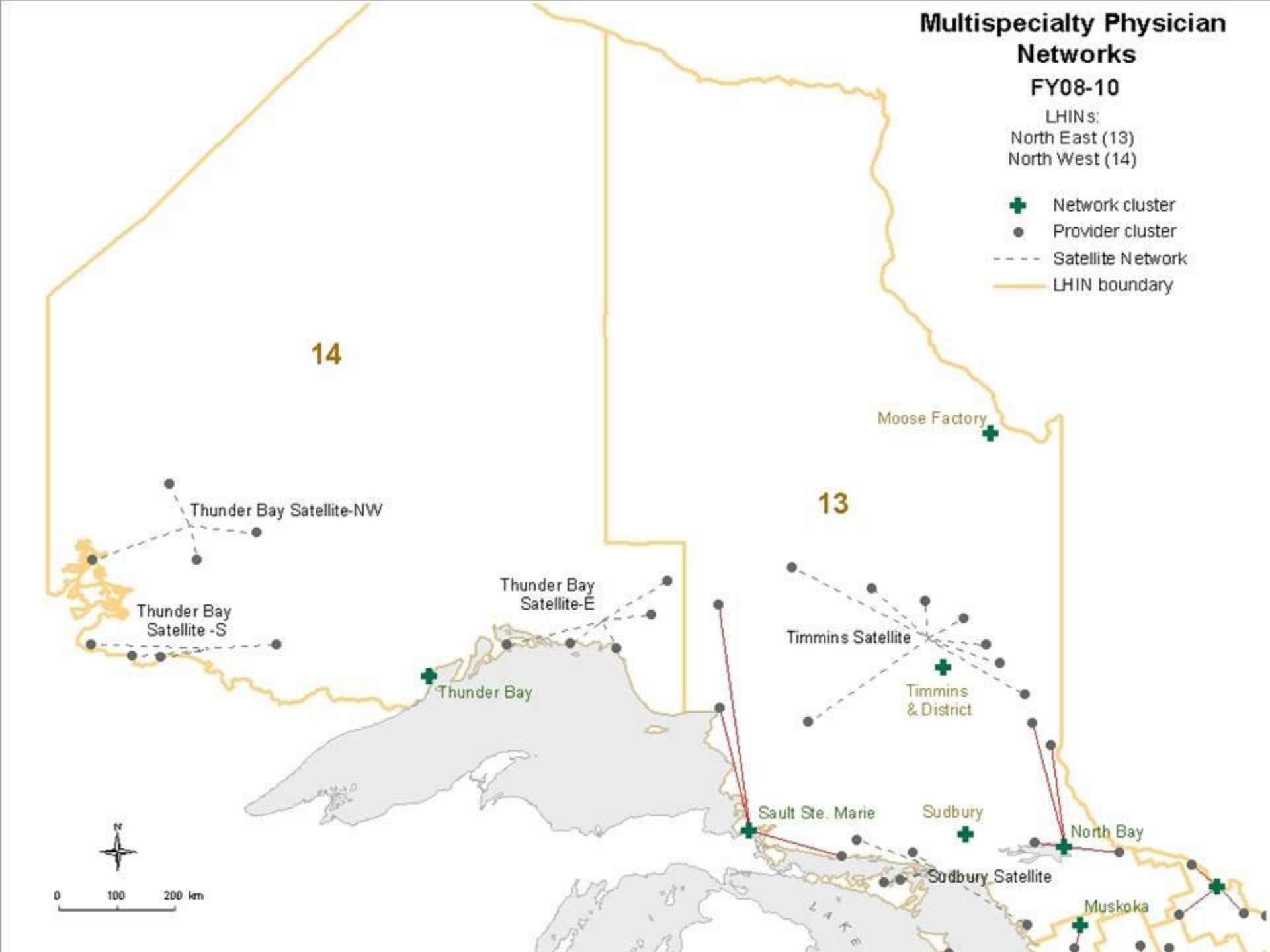

Multispecialty Physician Networks
FY08-10
LHINs:
Hamilton Niagara Haldimand Brant (4)
Mississauga Halton (6)
Network cluster
Provider cluster
LHIN boundary
3
6
7
4
2
Guelph
Kitchener-waterloo
Cambridge
Mississauga A
Mississauga B
Oakville
Burlington
Hamilton A
Hamilton B
St. Catherines
Niagara Falls
Brantford
Welland
Norfolk
N
0
10
20 km

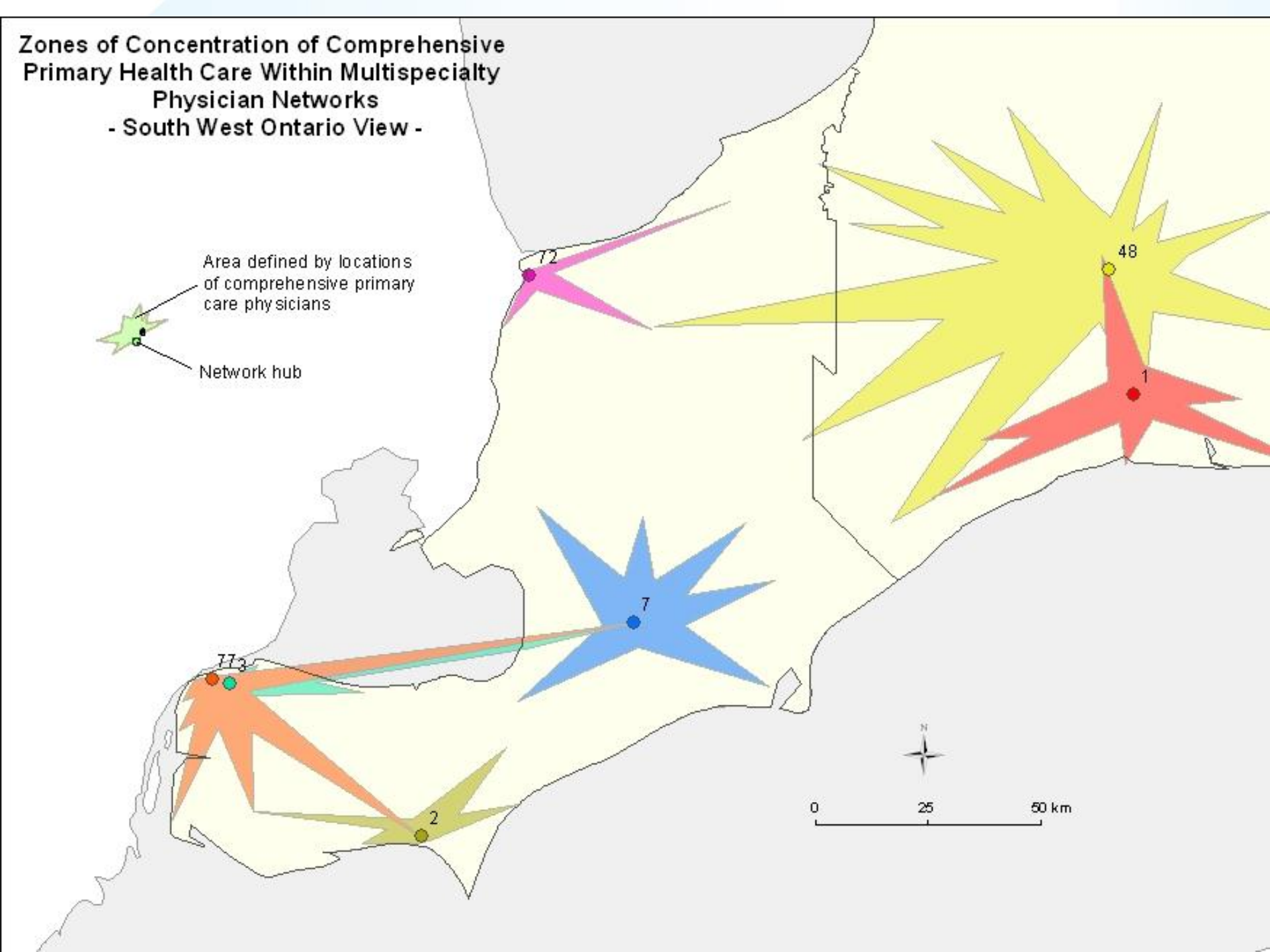

Multispecialty Physician Networks
FY08-10
LHINs:
Central West (5)
Central (8)
North Simcoe Muskoka (12)
Network cluster
Provider cluster
LHIN boundary
13
Muskoka
Georgian Bay
Orillia
12
Collingwood
Barrie
Newmarket
5
8
Dufferin
York
Markham Stouffville
Oshawa
West Durham
North West Toronto A
North West Toronto B
Scarborough C
North York
Scarborough A
Scarborough B
Brampton
Etobicoke
7
6

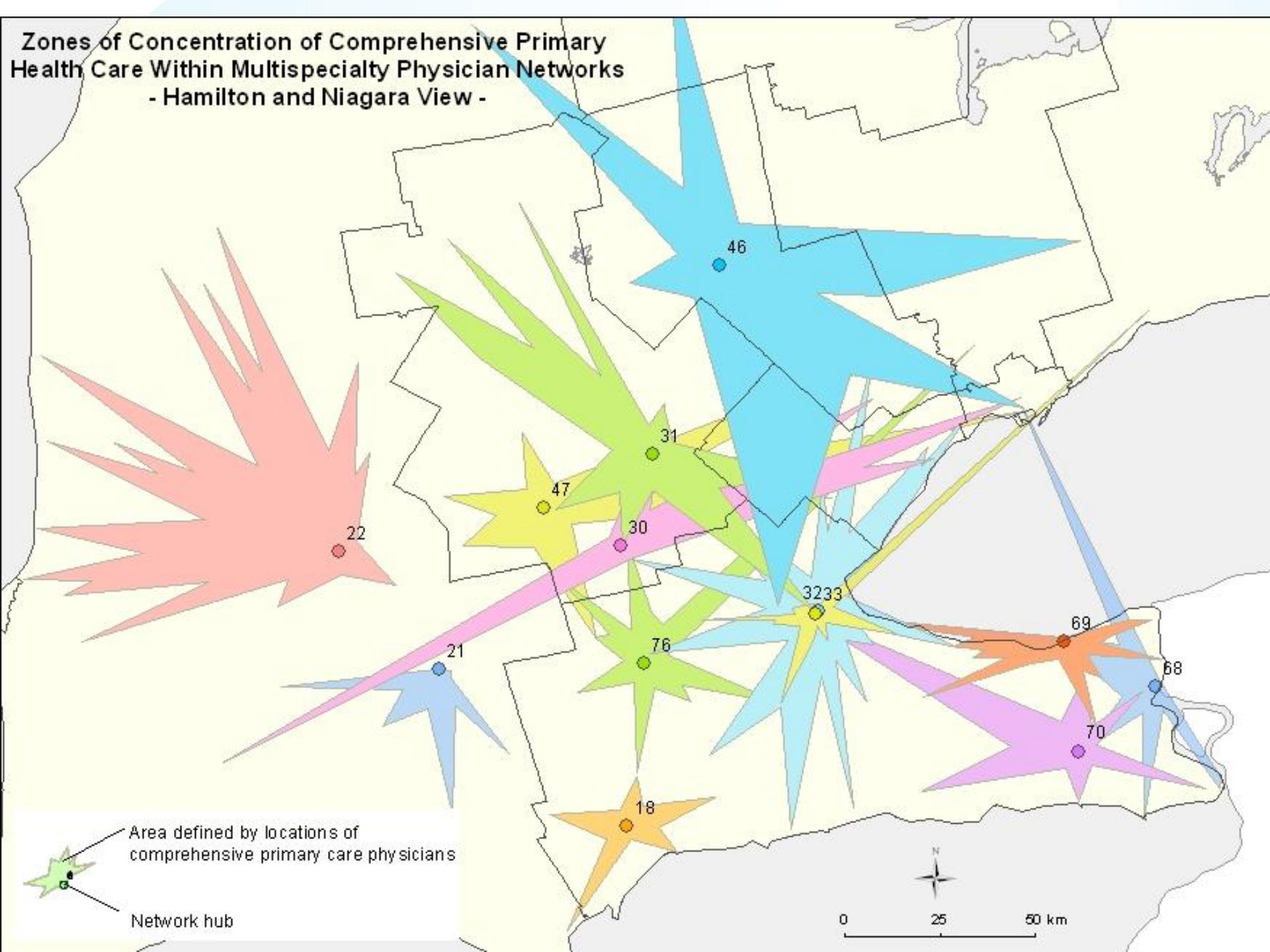

8
Scarborough C
Scarborough A
North York
9
Scarborough B
North West Toronto A
5
Etobicoke
North Toronto
North West Toronto B
East Toronto
7
Toronto Mental Health and Addictions
Downtown Toronto C
Downtown Toronto A
Downtown Toronto B
Toronto Children
South West Toronto
6
Mississauga B
Multispecialty physician networks
2008/2009 to 2010/2011
Toronto Central LHIN (7)
Network cluster
Provider cluster
LHIN boundary
N
0
5
10 km

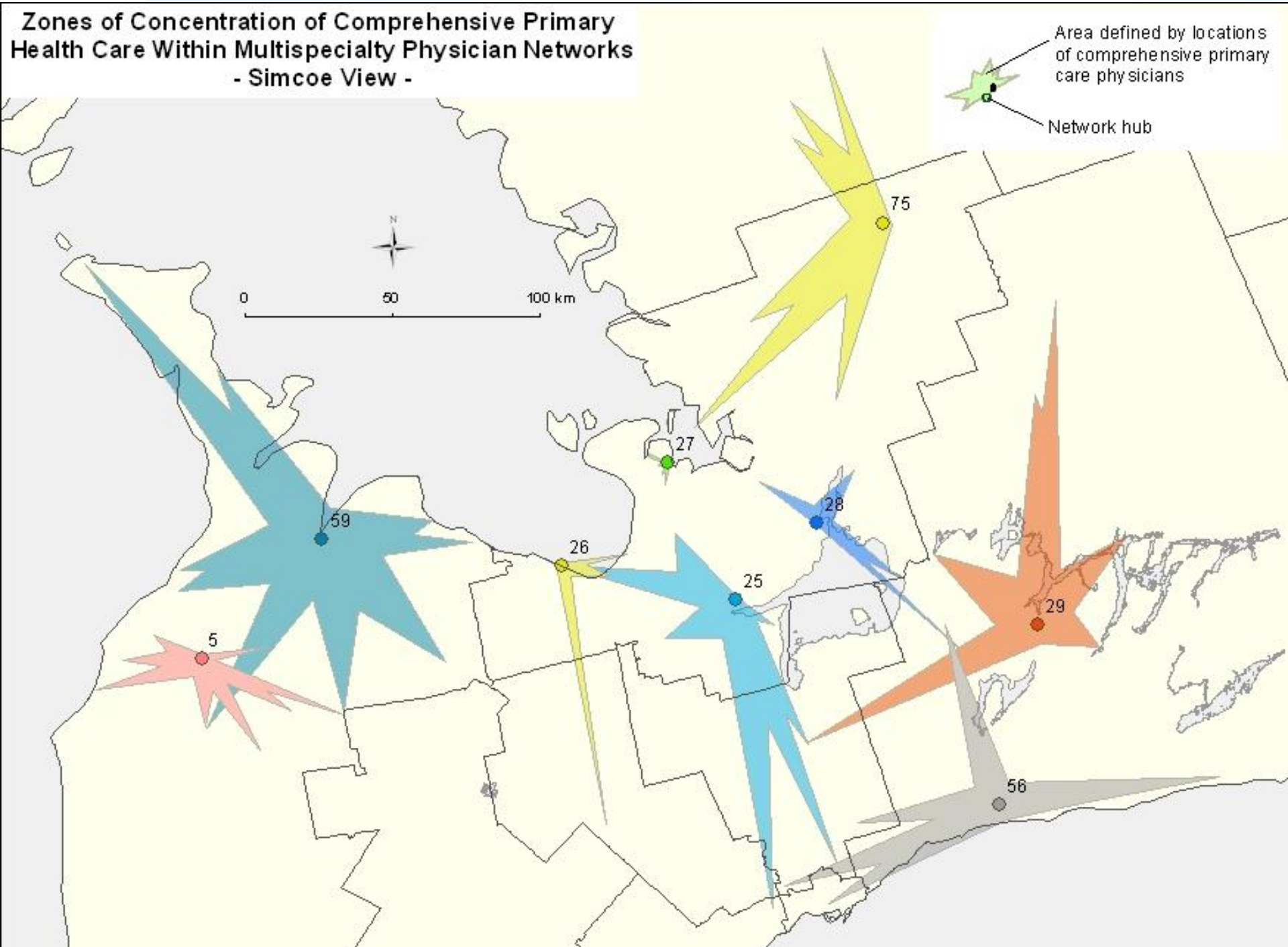

13
Multispecialty Physician Networks
FY08-10
Central East LHIN (9)
Network cluster
Provider cluster
LHIN boundary
Muskoka
9
Lindsay
Peterborough
Oshawa
Cobourg
Markham Stouffville
West Durham
Scarborough C
Scarborough A
Scarborough B

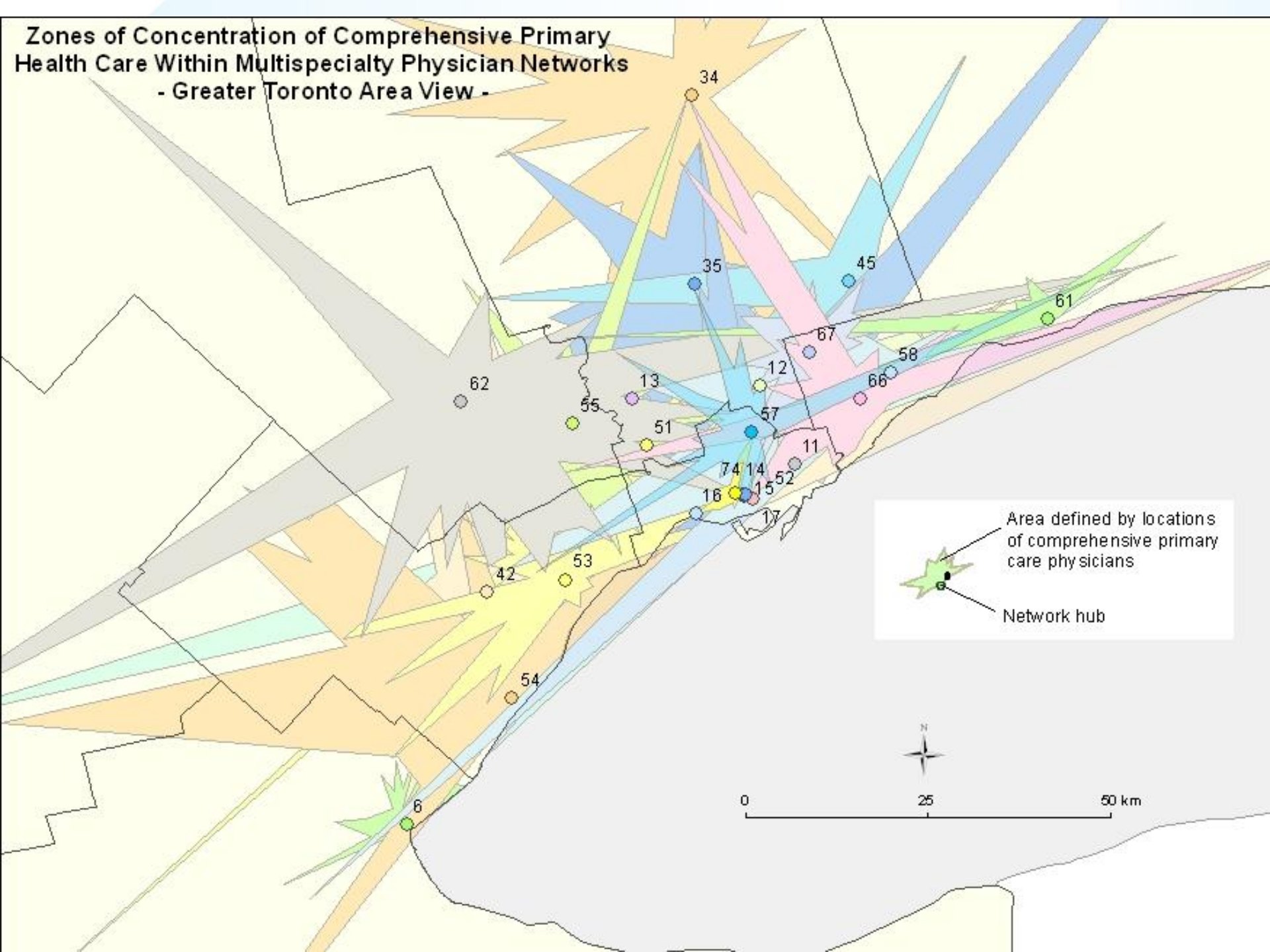

Multispecialty Physician Networks
FY08-10
LHINs:
South East (10)
Champlain (11)
Network cluster
Provider cluster
Satellite Network
LHIN boundary
13
11
10
9
Pembroke
Ottawa A
Ottawa C
Ottawa D
Ottawa B
Ottawa Children
Ottawa Satellite
Cornwall
Perth & Smiths Falls
Brockville
Peterborough
Kingston
Quinte
Cobourg
N
0
25
50 km

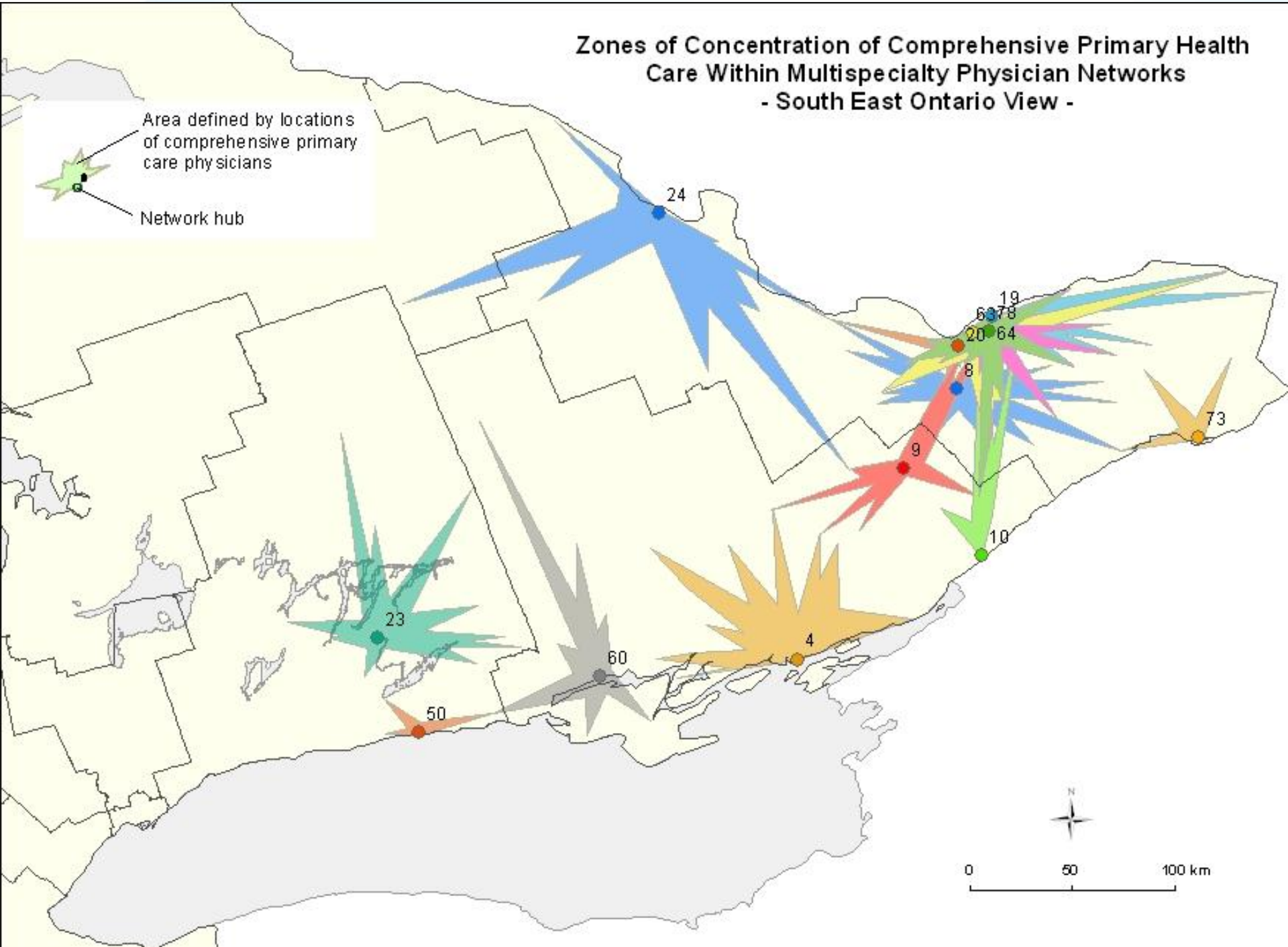

Multispecialty Physician Networks
FY08-10
LHINs:
North East (13)
North West (14)
Network cluster
Provider cluster
Satellite Network
LHIN boundary
14
13
Moose Factory
Thunder Bay Satellite-NW
Thunder Bay Satellite -S
Thunder Bay Satellite-E
Thunder Bay
Timmins Satellite
Timmins & District
Sault Ste. Marie
Sudbury
North Bay
Sudbury Satellite
Muskoka
0 100 200 km

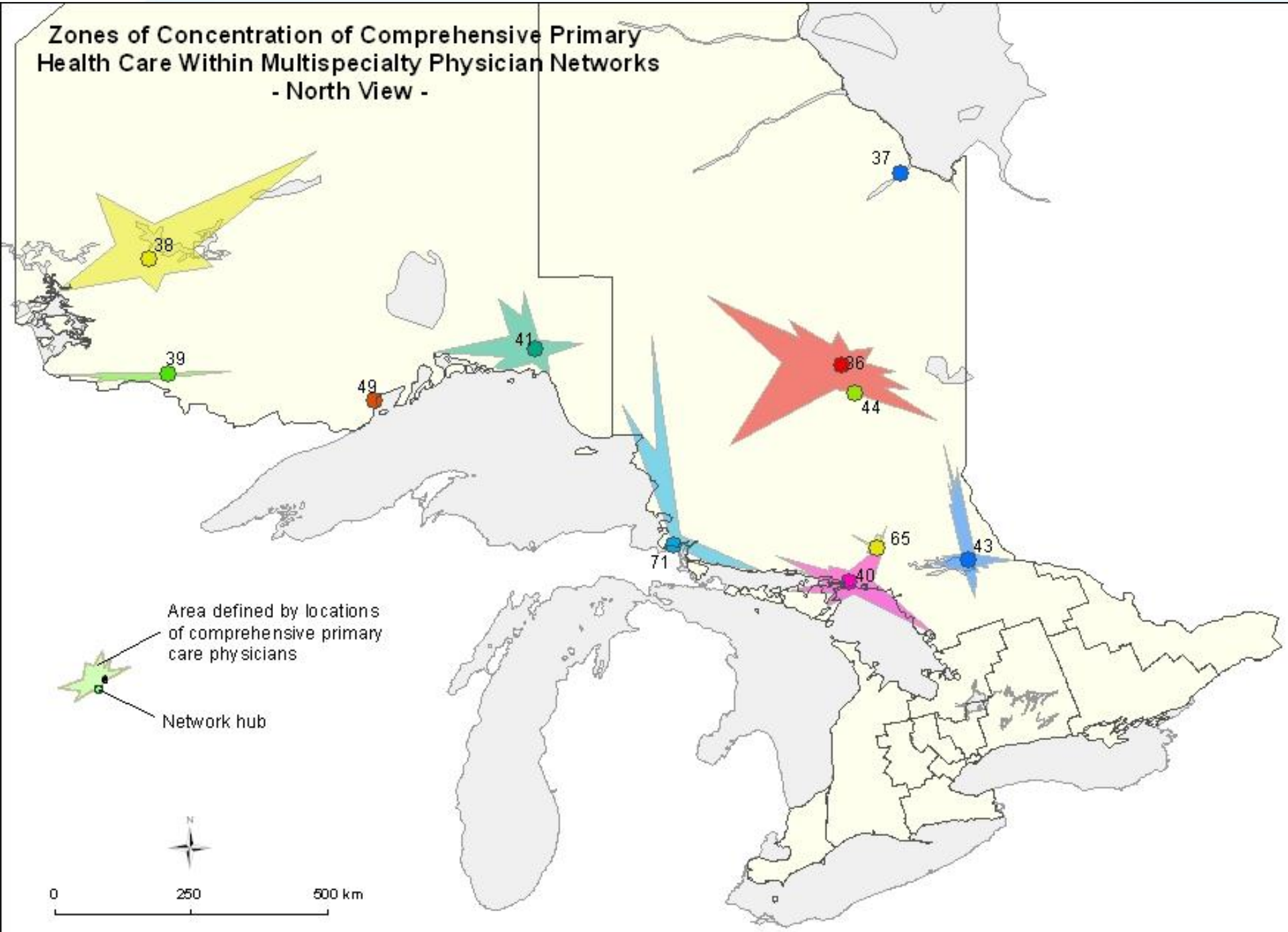

Zones of Concentration of Comprehensive Primary Health Care Within Multispecialty Physician Networks
- South West Ontario View -
Area defined by locations of comprehensive primary care physicians
Network hub
72
48
1
7
773
2
N
0
25
50 km


Zones of Concentration of Comprehensive Primary Health Care Within Multispecialty Physician Networks
- Hamilton and Niagara View -
46
31
47
22
30
3233
69
76
21
68
70
18
Area defined by locations of comprehensive primary care physicians
Network hub
N
0
25
50 km


Zones of Concentration of Comprehensive Primary Health Care Within Multispecialty Physician Networks
- Simcoe View -
Area defined by locations of comprehensive primary care physicians
Network hub
N
0
50
100 km
75
27
28
59
26
25
29
5
56


Zones of Concentration of Comprehensive Primary Health Care Within Multispecialty Physician Networks
- Greater Toronto Area View -
34
35
45
61
67
58
12
66
62
13
55
57
51
11
74
14
52
15
16
17
42
53
54
6
Area defined by locations of comprehensive primary care physicians
Network hub
N
0
25
50 km


Zones of Concentration of Comprehensive Primary Health Care Within Multispecialty Physician Networks
- South East Ontario View -
Area defined by locations of comprehensive primary care physicians
Network hub
24
19
63
78
20
64
8
73
9
10
23
4
60
50
N
0
50
100 km


Zones of Concentration of Comprehensive Primary Health Care Within Multispecialty Physician Networks
- North View -
37
38
39
41
49
36
44
65
43
71
40
Area defined by locations of comprehensive primary care physicians
Network hub
N
0
250
500 km

# Ontario physician networks: why this works

- Patient care is tightly concentrated within local providers
- Specialists tightly affiliated with hospitals, i.e. work predominantly in one hospital
- PC physicians tend to refer to the same specialists who work in the hospitals where their patients are admitted

# Loyalty Index (extent of self-containment)

Percent of hospitalizations/physician visits that occur to provider clusters or networks

For residents in a network, admission loyalty index (LI) is defined as

$$LI = \frac{\text{\# admissions to network hospitals}}{\text{\# admissions}}$$

Median network loyalties:

Non-maternal medical admission 67%; physician 68%; PC physician 81%

# Network Loyalty

| Loyalty Measure | Percentile | | |
|---|---|---|---|
| | 10th | 50th | 90th |
| Loyalty to network physicians | | | |
| PC physician loyalty | 72.8 | 81.1 | 92.4 |
| Physician loyalty | 59.4 | 68.4 | 86.3 |
| Loyalty to network hospitals | | | |
| Admission loyalty* | 36.0 | 58.7 | 81.3 |
| Non-maternal admission loyalty | 34.5 | 67.4 | 88.0 |

*Admission loyalty was calculated using all admissions (maternal and non-maternal) during the 3 year network linkage period (FY08 to 10).

# Health policy interest in Ontario: PC improvement

- Main Ontario policy interest is using the networks for primary care (PC) quality improvement, and dealing with inter-sectoral challenges like hospital readmissions.
- Implementation of the Excellent Care for All Act (ECFA) focuses on primary care.
- Each region is facing taking responsibility for hundreds of PC practices and groups, which is beyond their current capacity, so they are looking for ways to network PC physicians
- The networks form a much-needed unit of measurement, accountability and local action for quality improvement.
- Forms the conceptual basis of Ontario Health Links

# Health policy implications: system improvement

- Policy initiatives should focus on fostering organizational and professional accountability for longitudinal quality and costs.
  - Formal: Prepaid/multispecialty group practices (e.g., Kaiser in US).
  - Virtual: Physicians, other providers and associated hospitals.

  - Chronic disease patients are highly loyal, allowing comparisons of longitudinal costs and quality.
  - Performance measurement – and payment reform – would create incentives for hospital and staff to collaborate to improve quality across settings (inpatient–ambulatory).
  - Provides organizational context for management: implementation of information technology, quality improvement, chronic disease management, care coordination.

# Health policy implications: system improvement

- Multispecialty physician networks would integrate primary, secondary, tertiary care & community care.
- Physicians and other providers are the missing link in current accountability agreements ➔ future accountability agreements with physician networks.
- Accountability would be at network level.
- Provides context within which to engage hospitals, physicians and other providers on shared accountability to incentivize best practice and integrated care.
- Offers a structure to align new investments with directions of shared accountability/outcomes.
- Potential to bring in CCACs, LTC, interdisciplinary health professionals.
- Promotes shared investments in QI initiatives, EHRs, CD prevention and management tools.

# Thank You