Toronto Community Health Profiles Partnership Presentation for Health Quality Ontario

Friday April 15, 2016

How do we create & link geography with health indicator data? A GIS Primer

How TC LHIN Uses Data for Planning

Log in to TCHPP Site

www.torontohealthprofiles.ca

Follow along with the presentation & slides found under "About the Data" tab

Agenda

Part 1 Introduction & Overview (25 minutes)

- Welcome, introductions, format for session (Anne-Marie Tynan, Centre for Research on Inner City Health – CRICH)
- Background on the partnership and datasets (Rick Glazier, CRICH)
- Brief orientation to website (Peter Gozdyra, CRICH)

Part 2 Geography Primer + Linkage to Health Data (25 minutes)

- Geography 101: A GIS Primer (Peter Gozdyra)
- How do we link geography to health indicator data? (Mohammad Agha, CRICH)
- Questions

Part 3 Primary Care Enrolment & Continuity of Care (30 minutes)

- Overview of Primary Care Reform in Ontario & Patients First Initiative: Issues and Gaps (Rick Glazier)
- Presentation on *Primary Care: Enrolment & Continuity of Care – A Review of Toronto Neighbourhoods Using TCHPP Data* (Nathalie Sava, TC LHIN)
- Questions

Part 4 (10 minutes)

- Wrap-Up

Note: If they wish, there will be an opportunity for participants to stay on in the computer lab until 3:00 p.m. to continue to explore the TCHPP website.

Today's Presenters

Anne-Marie Tynan: Anne-Marie is a Research Manager at the Centre for Research on Inner City Health (CRICH), St. Michael's Hospital and holds a Masters degree in Immigration & Settlement Studies with a focus on the Health of Immigrant Communities;

Rick Glazier: Rick is a Family Physician and is the Research Director in the Department of Family & Community Medicine at St. Michael's Hospital. He is also a Research Scientist at CRICH, Senior Scientist & Program Lead, for Primary Care & Population Health Research at the Institute for Clinical Evaluative Sciences (ICES) and a Professor at the University of Toronto (UofT) with cross appointments to the Dalla Lana School of Public Health and the Faculty of Medicine;

Peter Gozdyra: Peter has extensive experience working as a Medical Geographer at both ICES & CRICH. He has been involved in numerous projects that require in-depth understanding of spatial analytic tools. He holds a Masters in Geography from UofT;

Mohammad Agha: Mohammad holds a PhD in Epidemiology from UofT and is an Adjunct Scientist at ICES and a Senior Research Associate at CRICH. He has extensive experience in developing and generating health indicator data including linkages between data and geography;

Nathalie Sava: Nathalie Sava is a Planner at the Toronto Central LHIN. She holds a Masters in Health Administration and Master of Social Work, with a Mental Health and Health specialization. She centralizes her population health analyses from a social justice and equity perspective. Her scope of work spans from primary care planning and program evaluation, to mapping and data analytics.

Thanks to Cynthia Damba, TC LHIN and Naushaba Degani, Health Quality Ontario for their help in today's workshop!

Overview of Partnership & Datasets used by TCHPP

Rick Glazier, TCHPP

Current Partners

- Centre for Research on Inner City Health (CRICH), St. Michael's Hospital
- Toronto Central Local Health Integration Network (LHIN)
- Toronto Public Health
- Wellesley Institute
- The Southeast Toronto Project (SETo)
- Access Alliance Multicultural Health & Community Services
- Institute for Clinical Evaluative Sciences (ICES)
- Wellbeing Toronto
- Central LHIN – new partner as of November 2015

Overall goals:

- Foster **collaborations & partnerships** between health services providers, researchers and policy-makers
- Facilitate **access to health information** to support planning
- Maximize the **effective use of system resources** for planning
- **Increase capacity** of health service providers to use health information
- Deepen **understanding of Health Inequities** and how to measure, monitor and reduce them.

TCHPP Website

- In 2005 the Toronto Community Health Profiles Partnership launched the Toronto Community Health Profiles Partnership Website with the purpose of making detailed, area-level health data available to everyone.
- Data available on freely accessible portal
- Updated regularly with latest data

What gap are we filling?

- Producing health indicators for Toronto communities and service providers to:
  - ✓ **Reduce duplication** of work
  - ✓ **Maximize efficiency and productivity** by collaborating and sharing
  - ✓ Use **common** definitions, data standards, methods, quality assurance
  - ✓ Create a **single point of access** for health indicators **on website**
  - ✓ Provide **information and training**

Our focus:

- Vulnerable populations
- Neighbourhood-level areas with greatest health needs
- Multiple barriers to access
- Translation and cultural interpretation priorities
- Equity

Access to numerous data sources

- Physician services (OHIP)
- Hospitalizations (CIHI, OMHRS)
- Emergency Department visits (NACRS)
- Vital Statistics (Office of the Registrar General of Ontario)
- Specialized databases (Cytobase, Ontario Breast Screening Program (OBSP))
- Chronic disease provincial registries (Diabetes, Asthma, COPD, etc.)
- Census (1991, 1996, 2001, 2006, 2011)
- Immigration data (CIC) linked to health services use
- Numerous Geographic datasets
- Partner data from Toronto Public Health (e.g. STI, Mothers & Babies)
- Other sources of data that become available to us

Health Topics

- Socio-demographic Data
- Hospital Admissions
- Emergency Department Care
- Adult Health and Disease
- Prevention
- Sexual Health
- Mothers & Babies
- Premature Mortality
- Ontario Marginalization Index
- Top High Cost Health Care Users
- Primary Care (Attachment & Continuity In Care)

Questions?

Overview of Toronto Community Health Profiles Partnership website

Go back to website homepage

Peter Gozdyra

Questions?

Geography 101: A Primer

Peter Gozdyra

Toronto Community Health Profiles

Leading with Innovation
Serving with Compassion
ST. MICHAEL'S HOSPITAL
A teaching hospital affiliated with the University of Toronto

Ontario's geographic units: Overview and Recent Changes

ICES

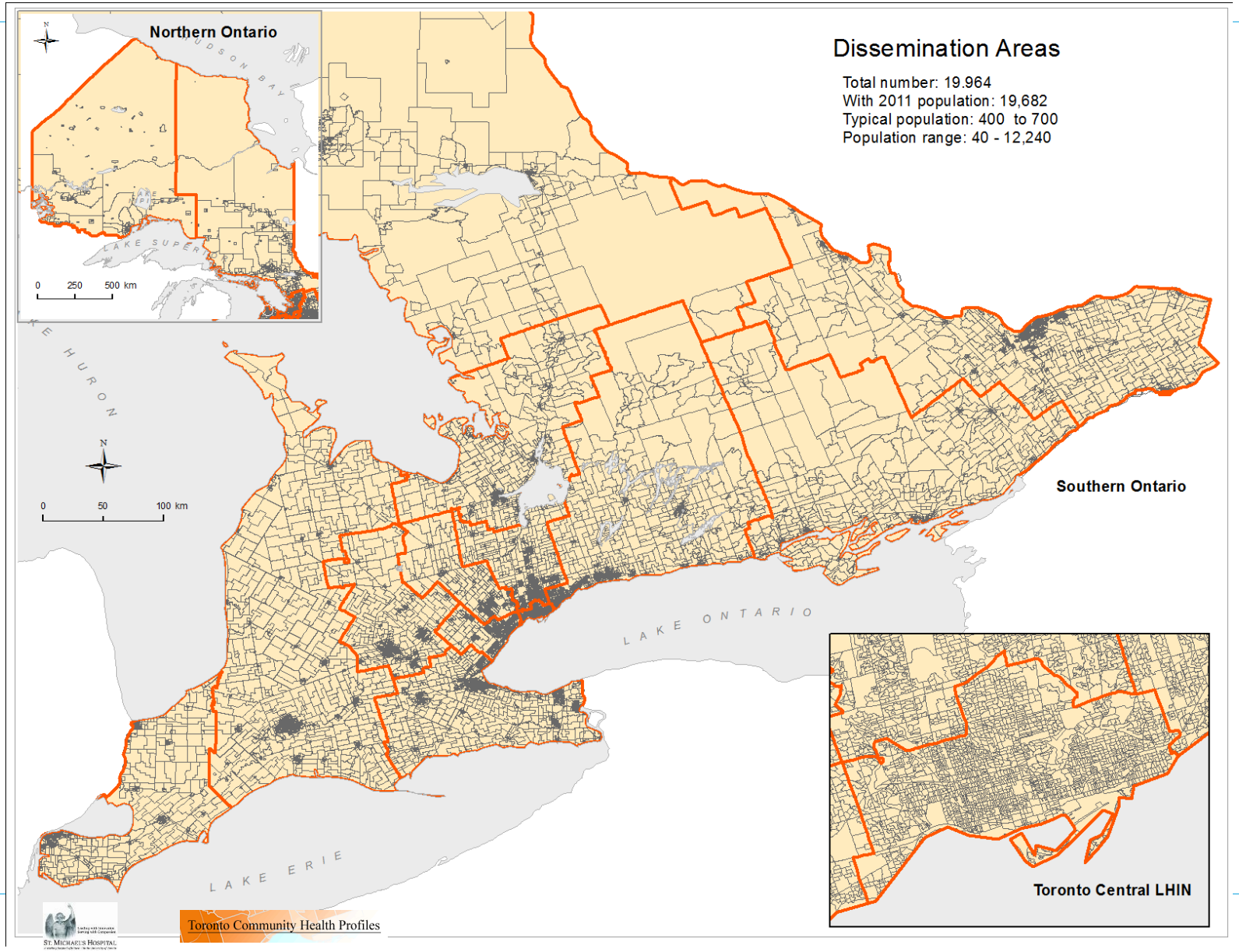
PETER GOZDYRA

March 4, 2016

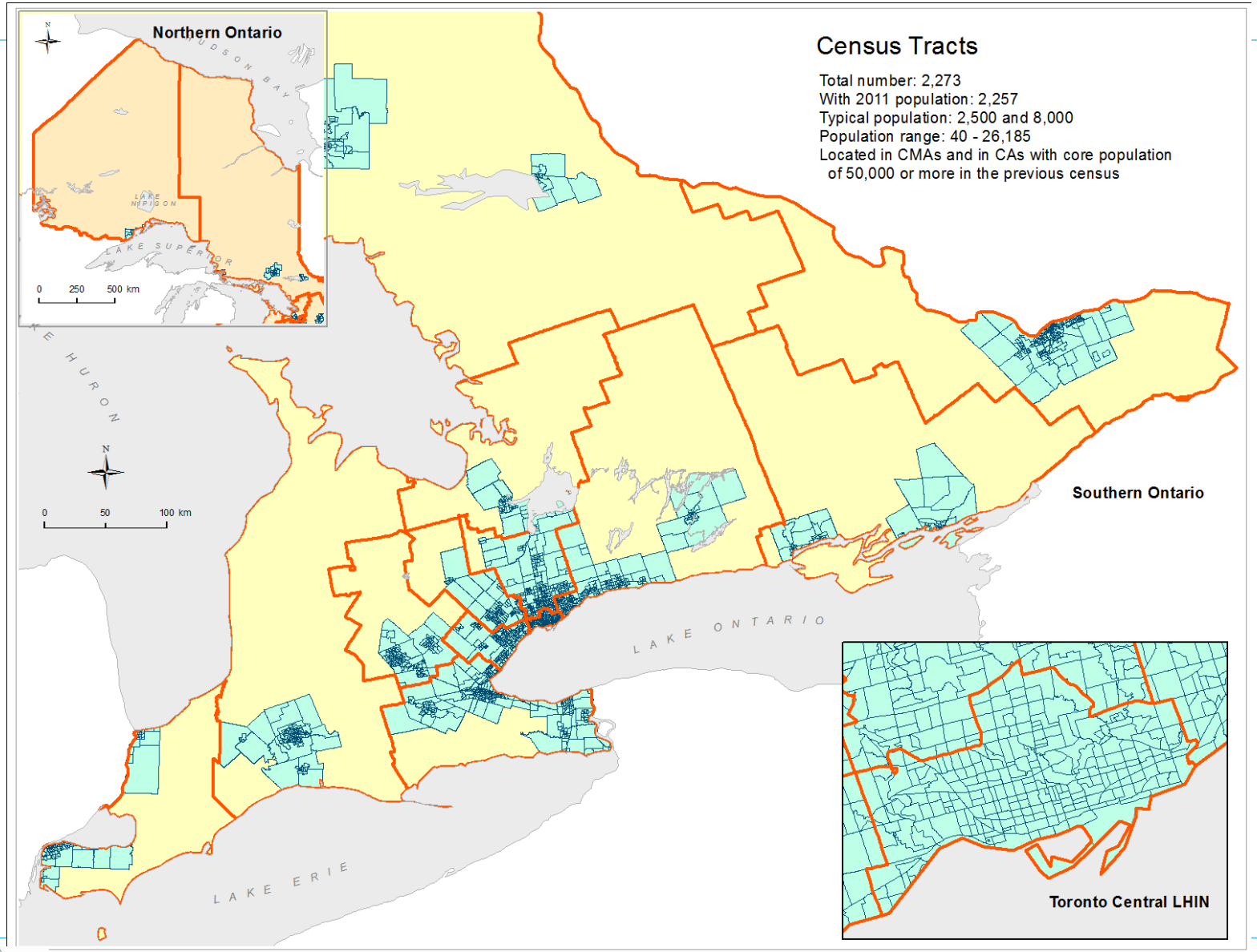
What We Will Cover

1. Review of standard geographic units
2. New geographic areas

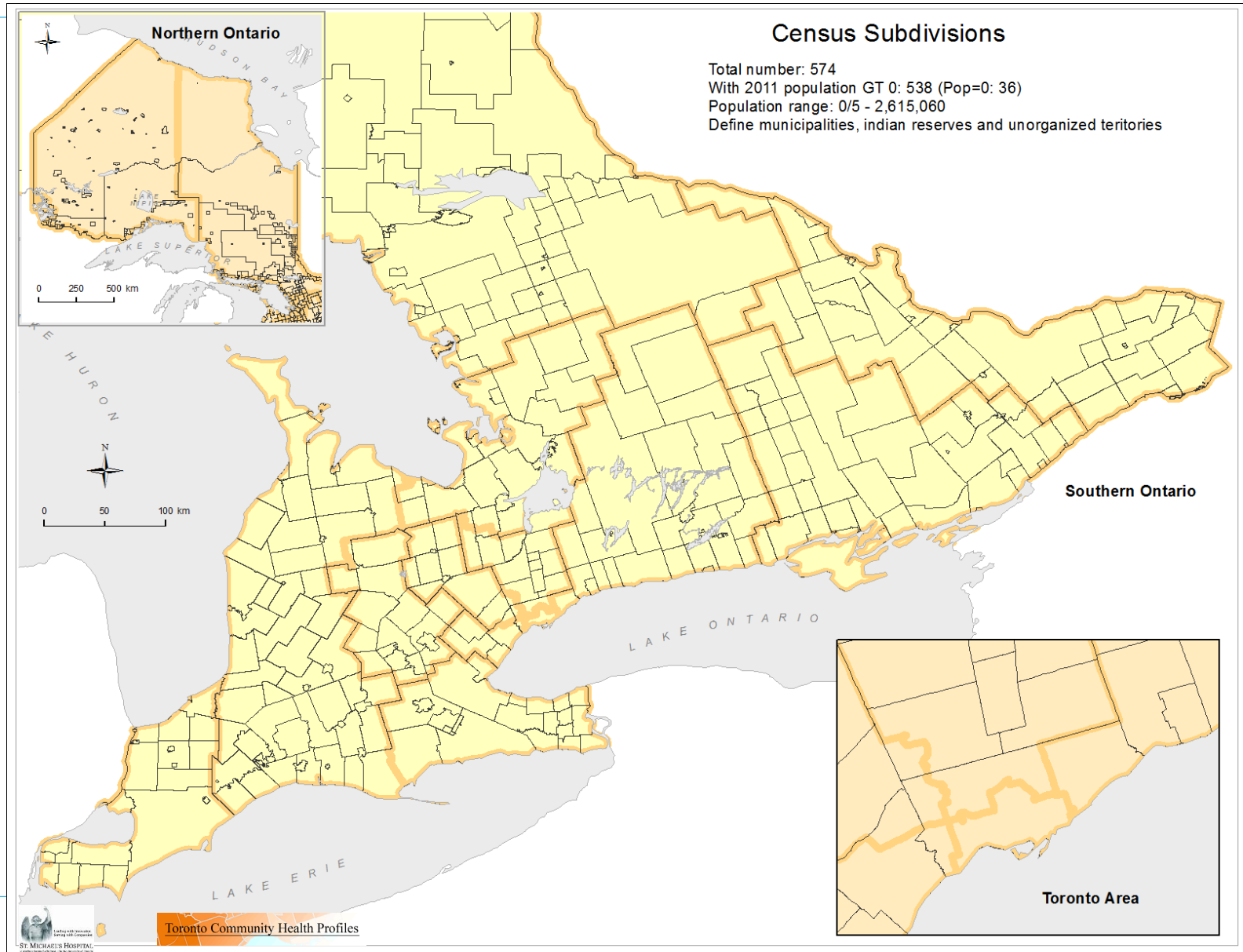
Standard Units – census based



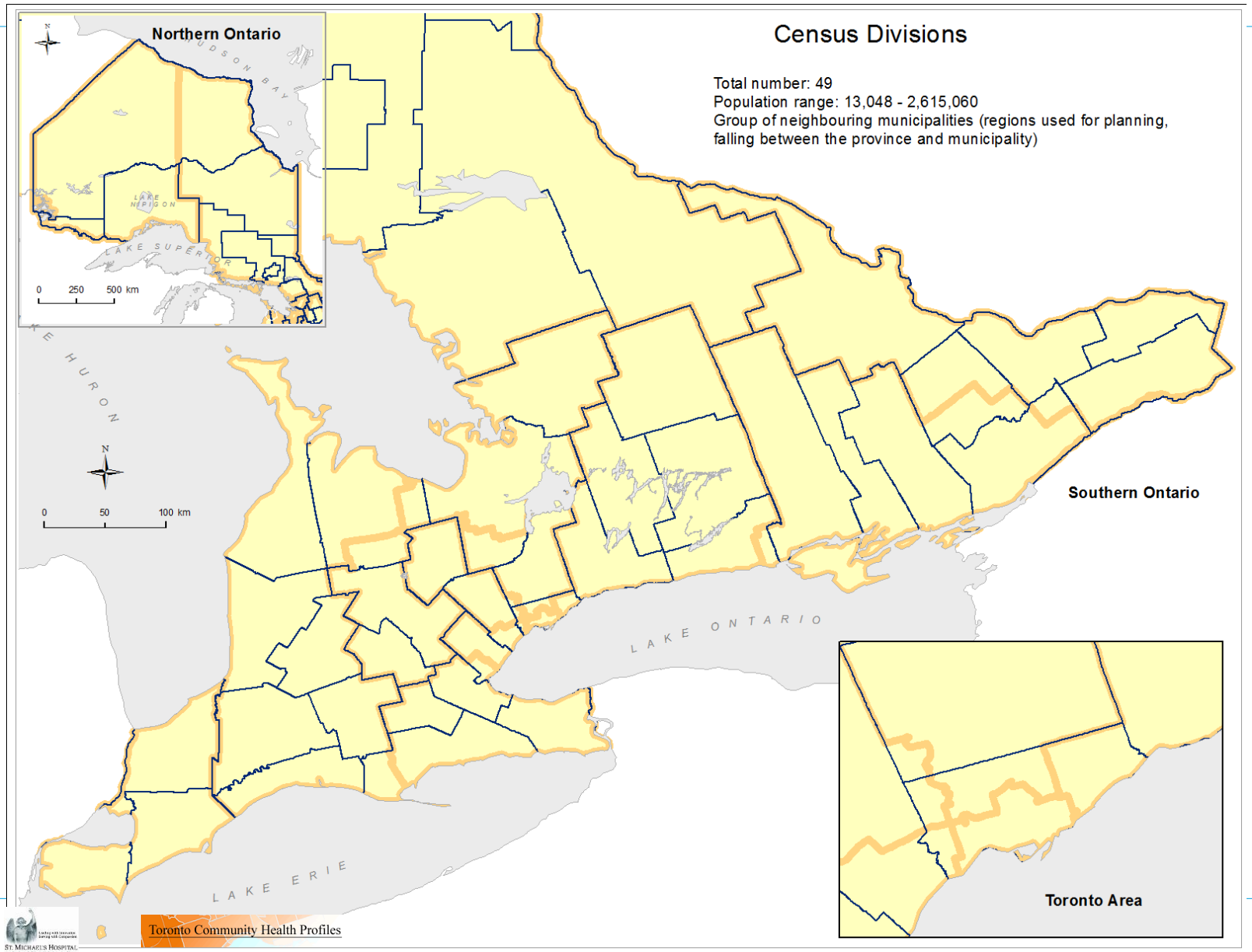
Standard Units – census based



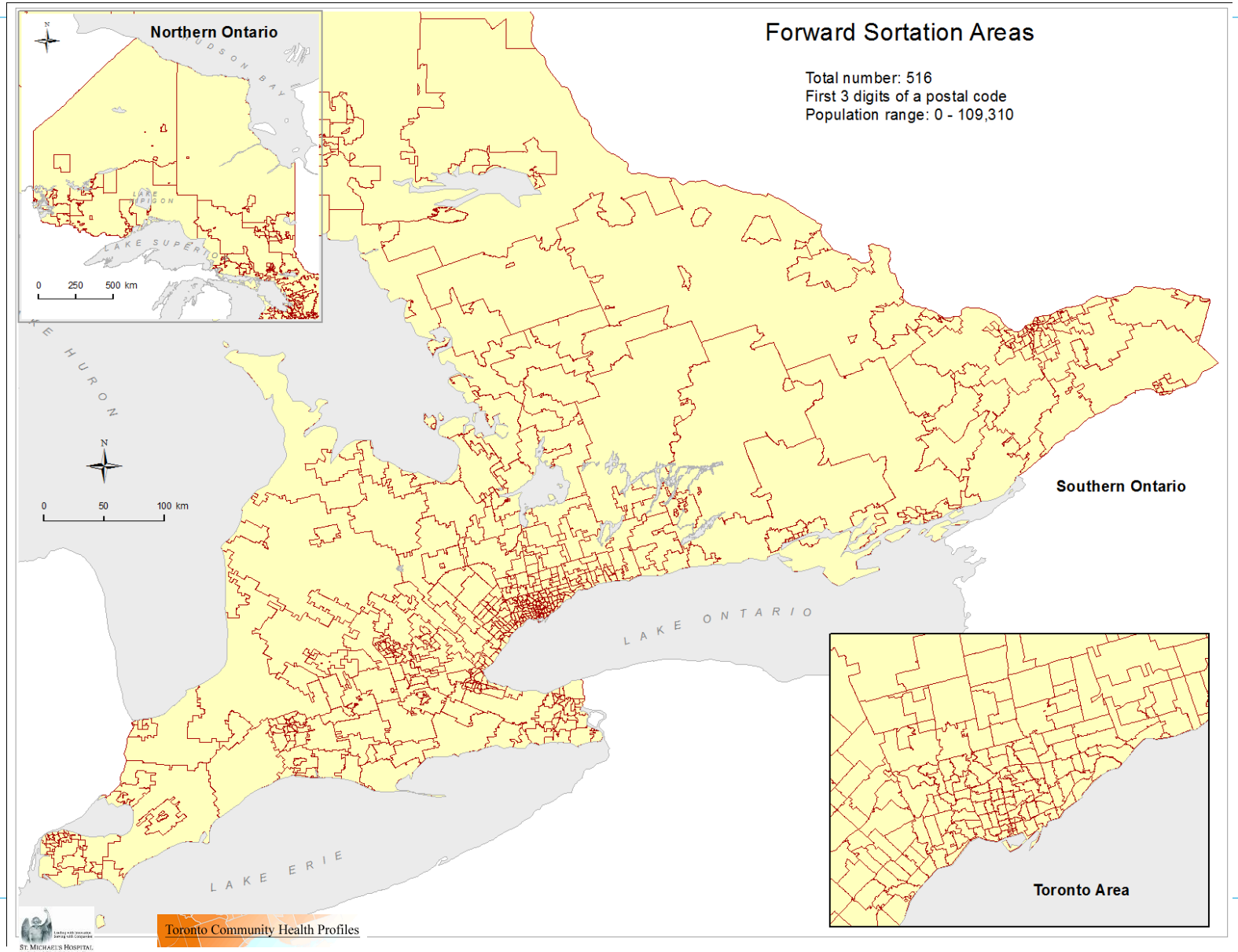
Standard Units – census based



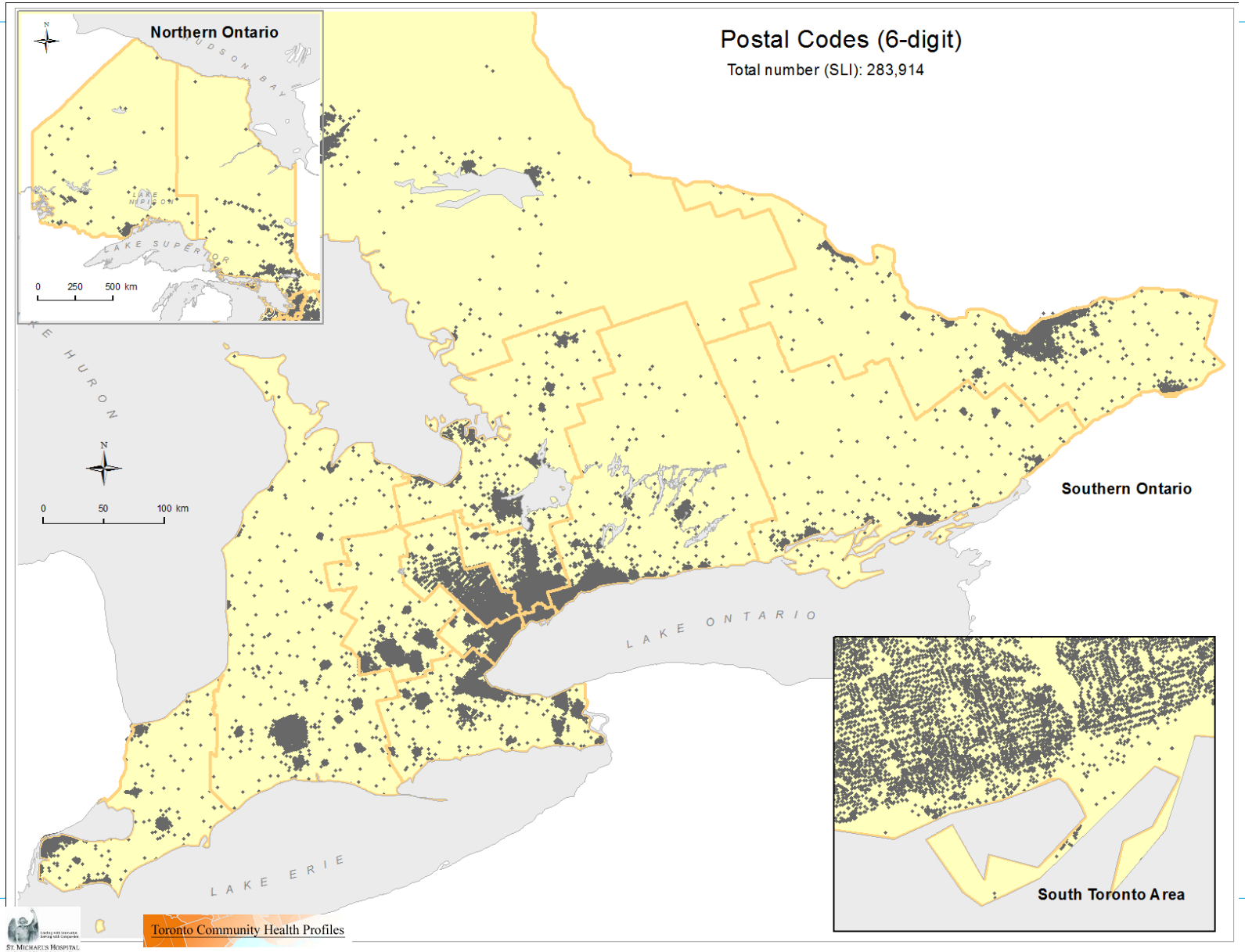
Standard Units – census based



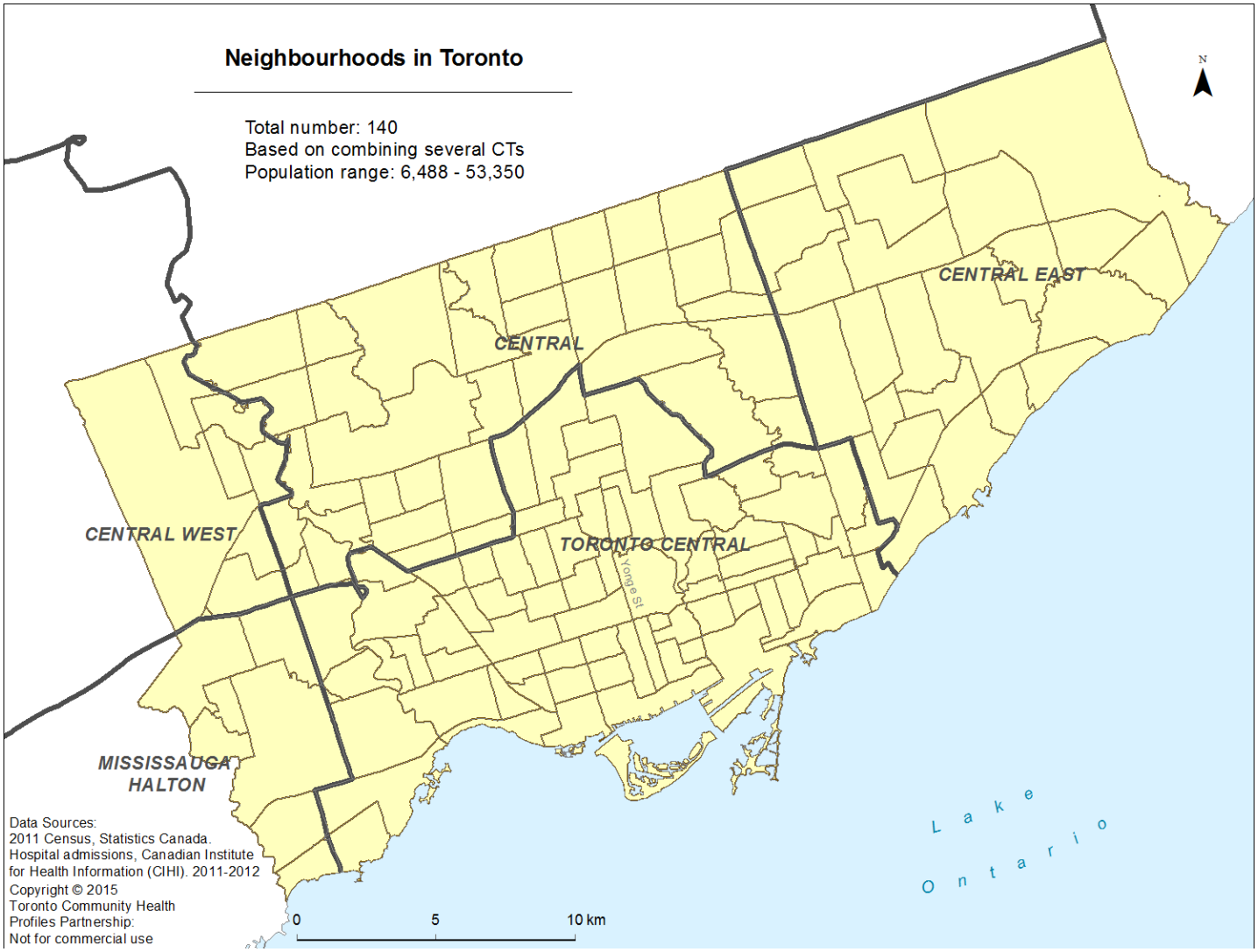
Standard Units – postal based



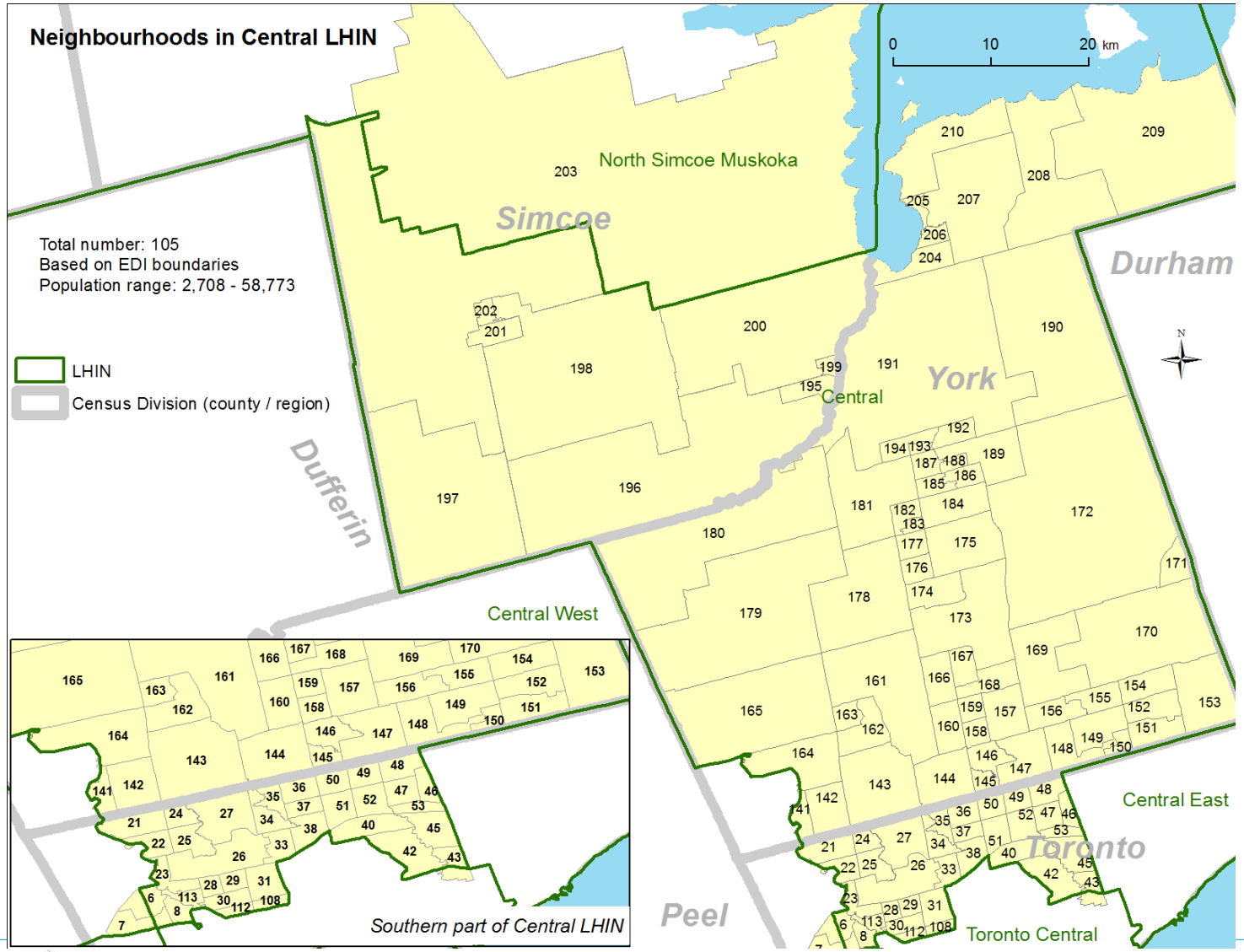
Standard Units – postal based



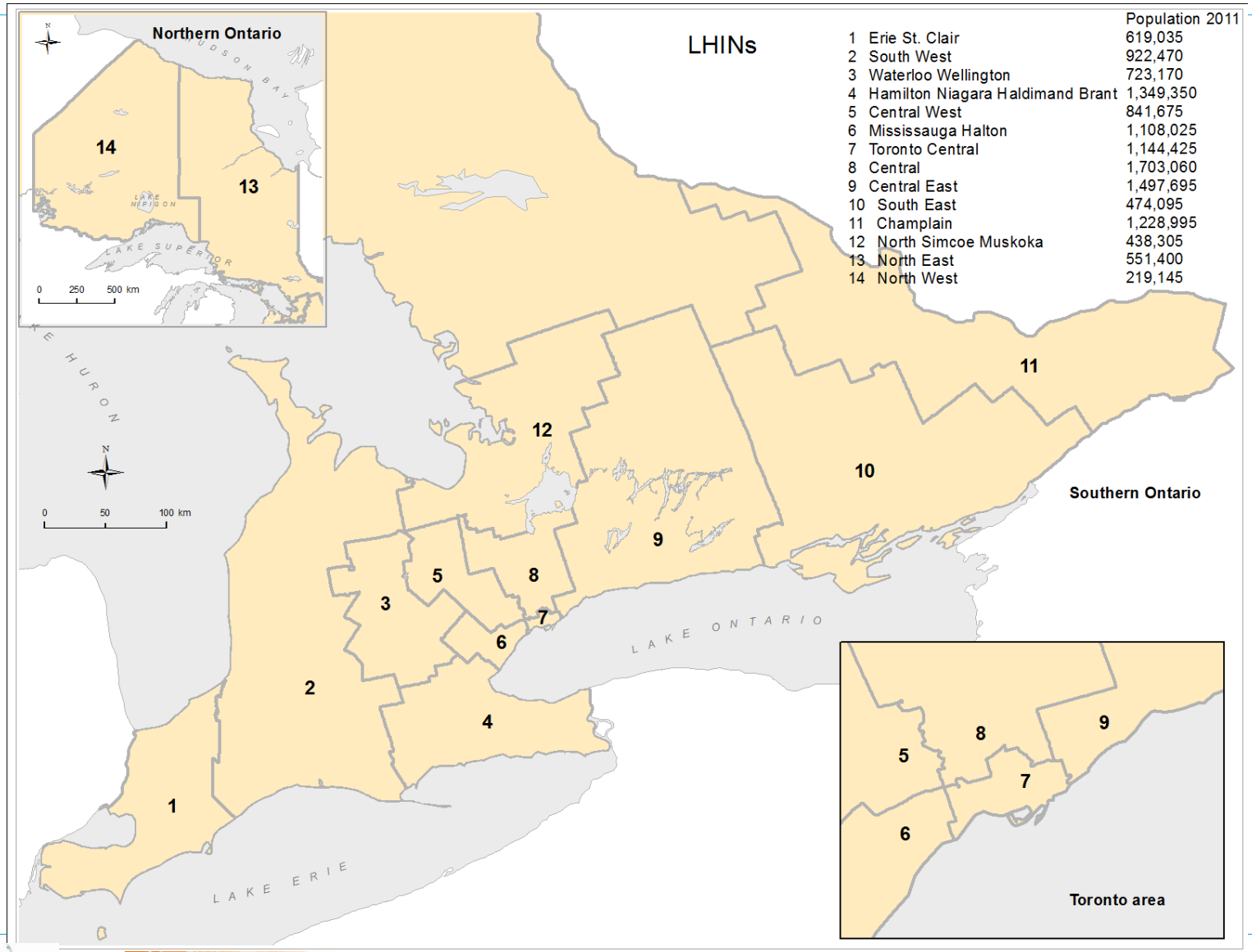
Standard Units – other



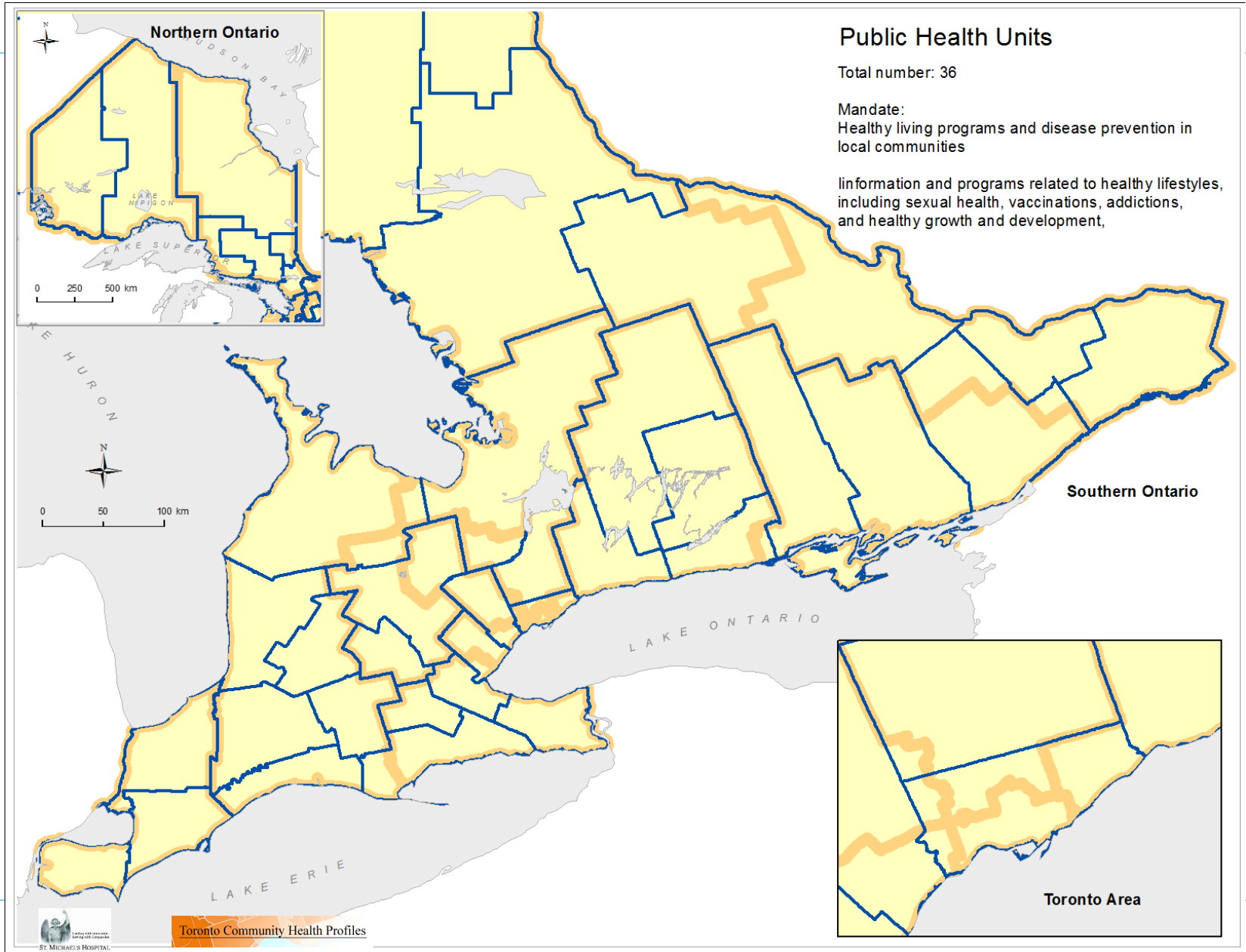
Standard Units – other



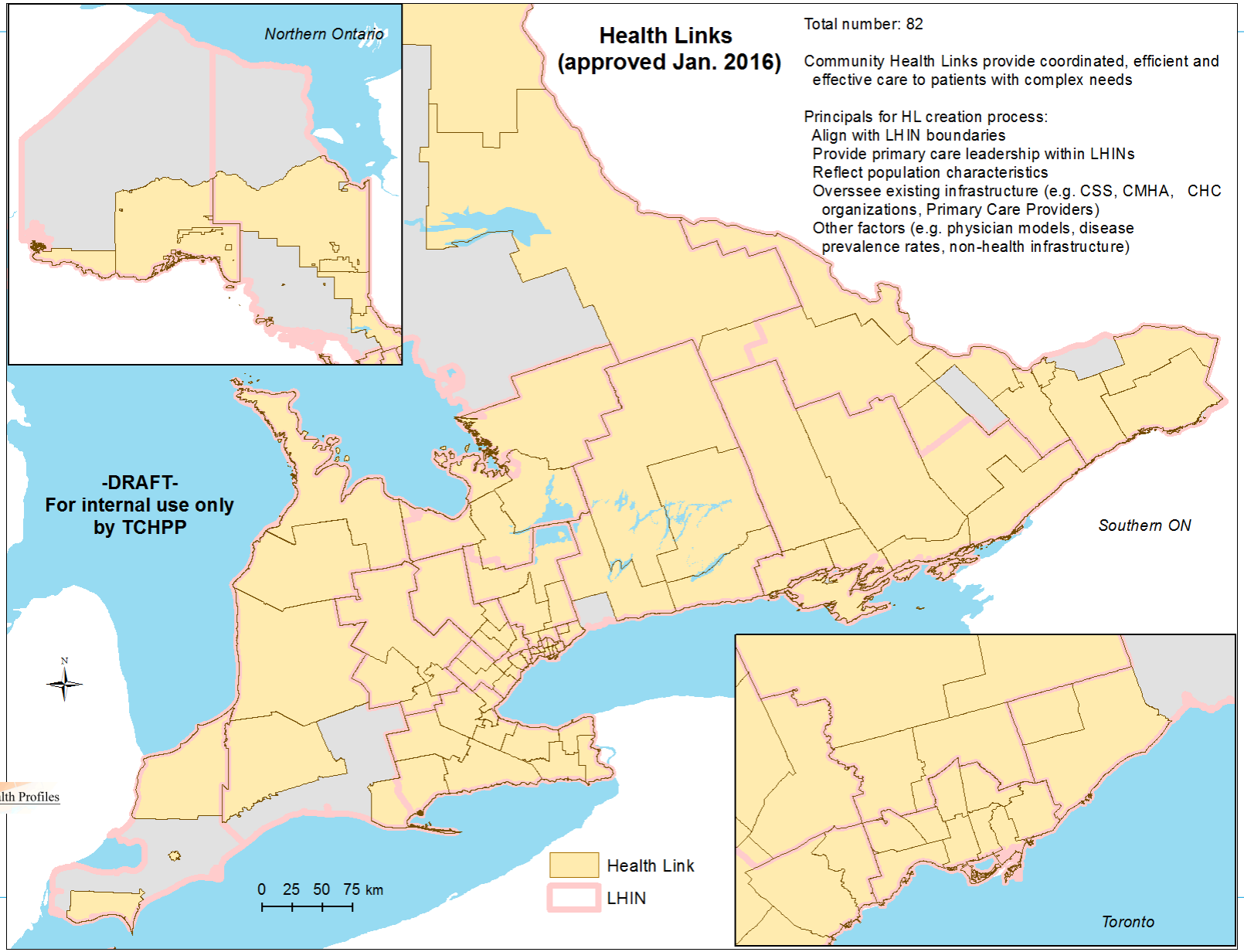
Standard Units – health based



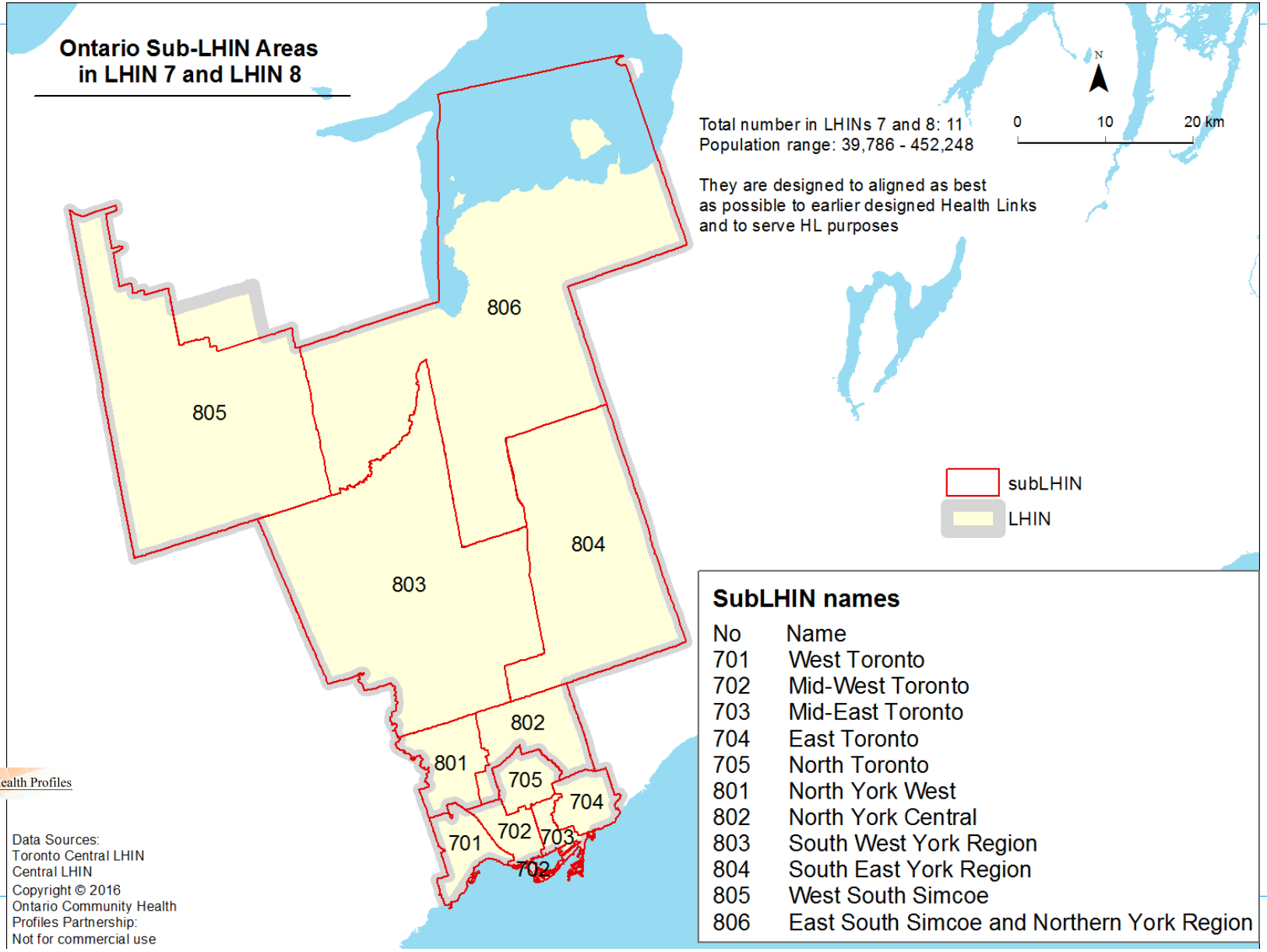
Standard Units – health based



New Geographic Units



New Geographic Units



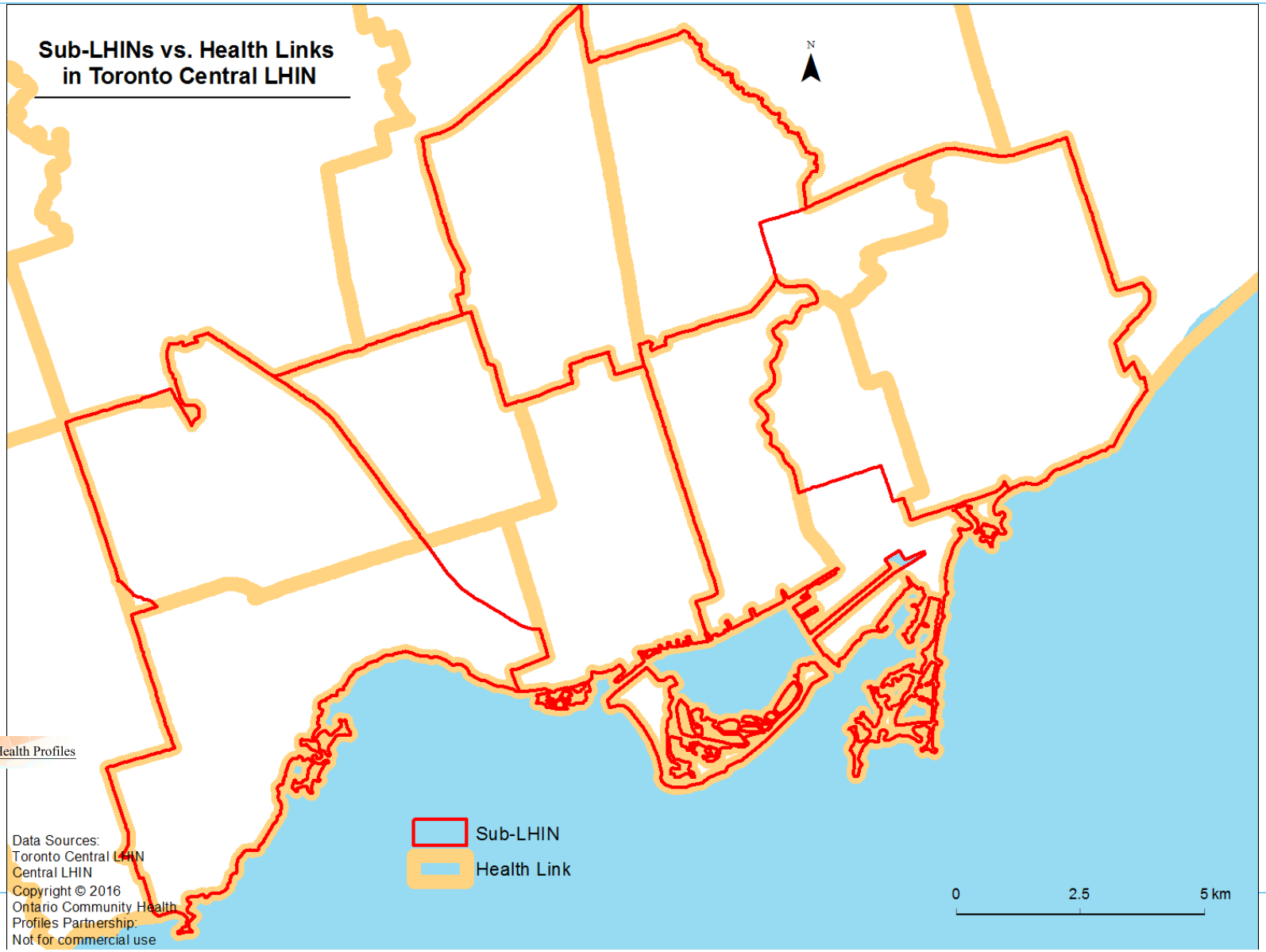
Toronto Community Health Profiles

St. Michael's Hospital

Data Sources:
Toronto Central LHIN
Central LHIN

ICES

New Geographic Units



Questions?

How do we link the geography to the health data?

Mohammad Agha, CRICH

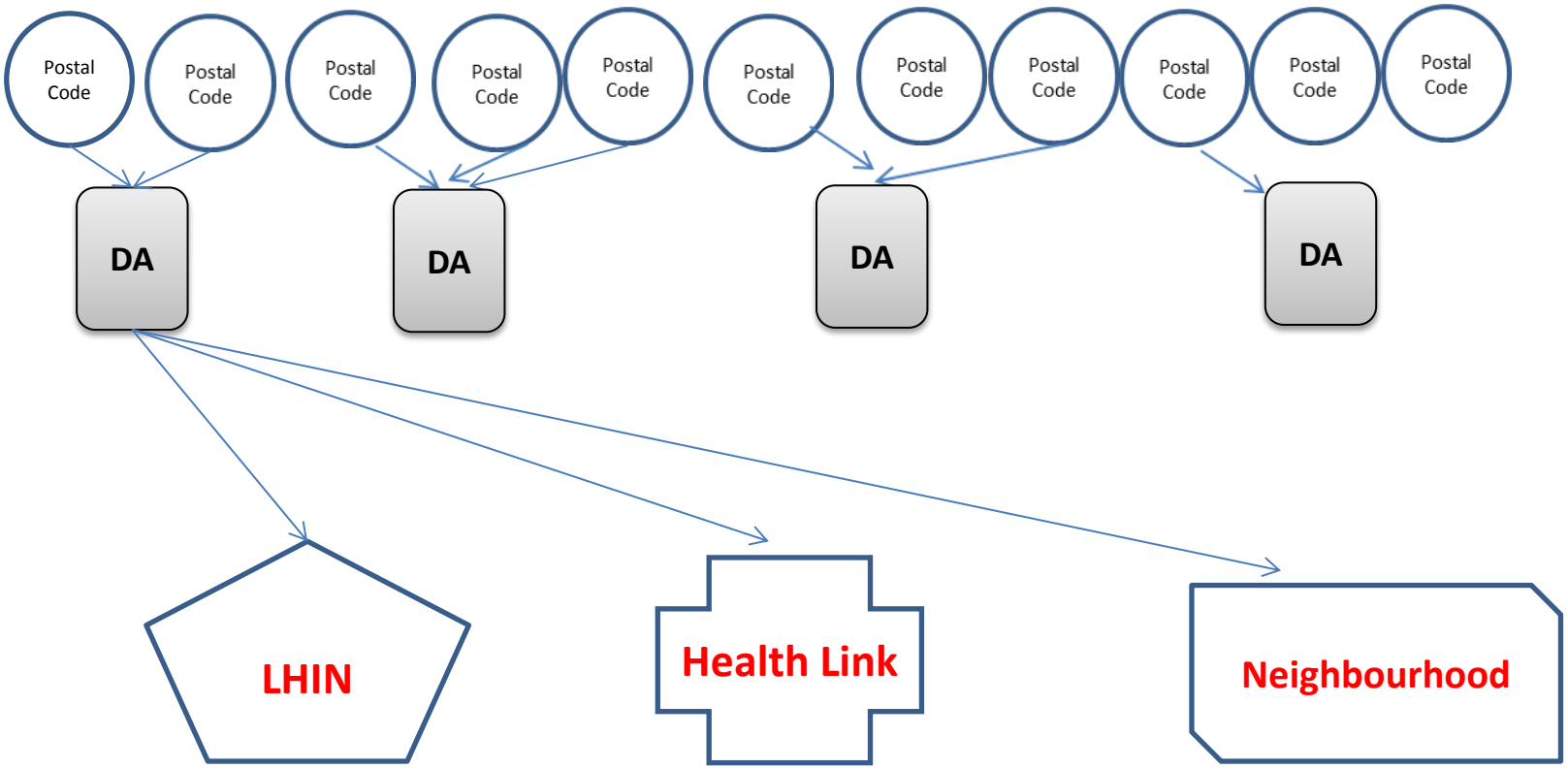
Data Linkage-Population Data

How do we generate denominator population data?

- All postal codes in Ontario are linked to a Dissemination Area (DA)
- The population for each DA is taken from Census Data
- The population for each geographical unit is estimated by summing DA populations in each geography

- Groups of DAs make up larger geographical units - Example:
  - **LHINs**
  - **Sub-LHINS**
  - **Health Links**
  - **Neighbourhoods**

Example of Data Linkage
Postal Codes → Dissemination Areas → Geographic Units



Data Linkage-Numerator

How do we generate numerator data?

- We select specific variables from health data sets stored at ICES (e.g., CIHI, NACRS, OHIP, Diabetes, Cancer, Asthma, etc.) for a given year

- Scrambled Health Card Numbers for all patients are linked to the Registered Persons Database (RPDB). This database contains data such as: postal codes, date of birth, death, for all OHIP-registered individuals in the Province of Ontario

- Using the postal code reported for a patient, these are linked to a specific Dissemination Area in Ontario.

- Using the geography file and using DA, each individual is assigned to a LHIN, a SubLHIN, Health Link, and neighbourhood.

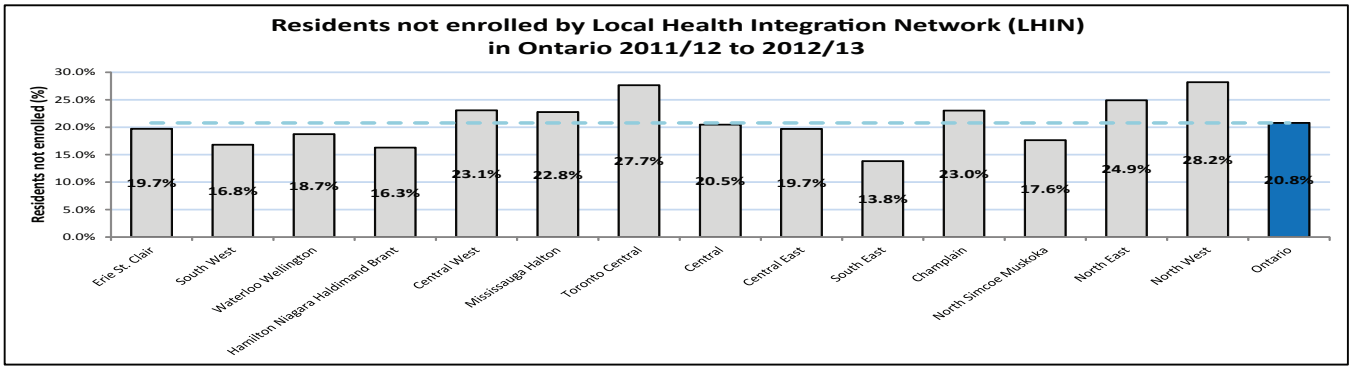
Questions?

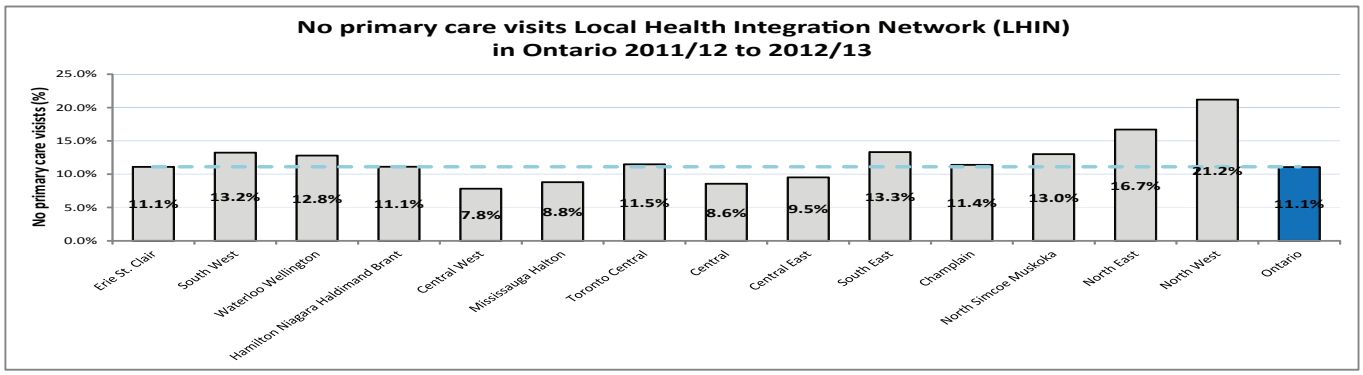
Primary Care Reform in Ontario: An Overview

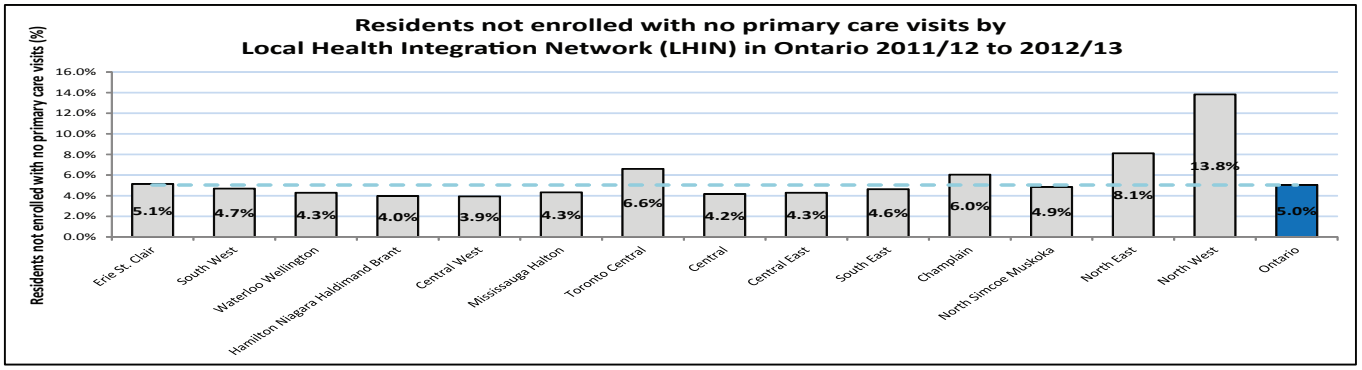
Rick Glazier

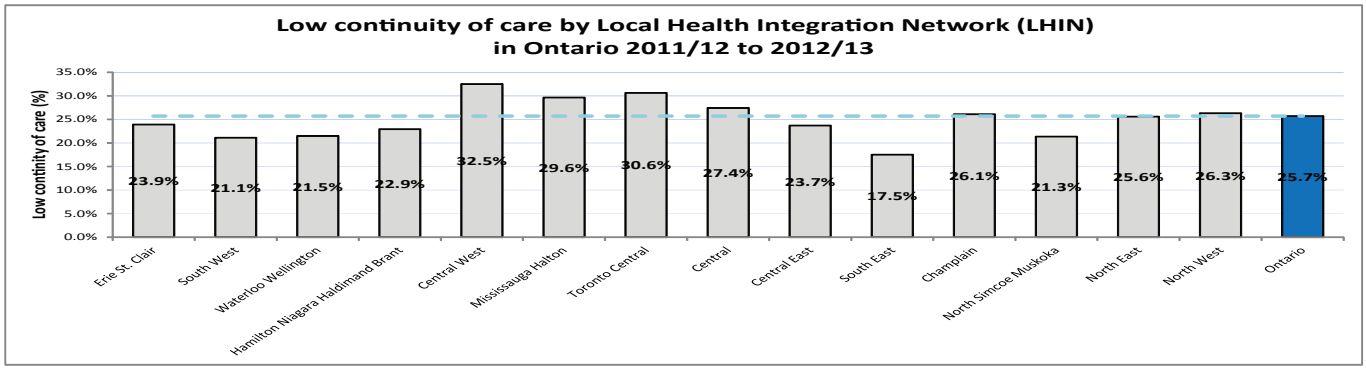
Figure 5.

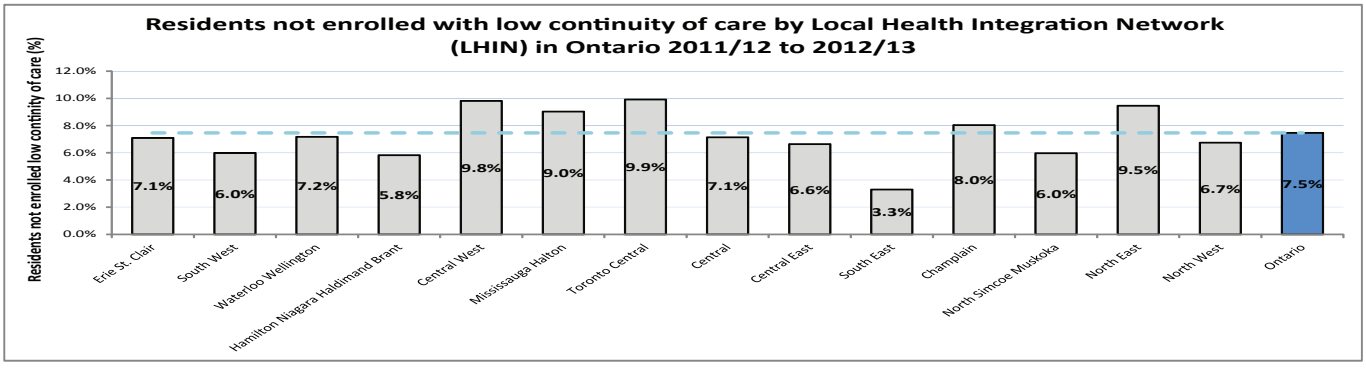
Underserved Populations in Primary Care by Local Health Integration Network











Primary Care: Attachment & Continuity of Care: How TC LHIN Uses TCHPP Data

Nathalie Sava, TC LHIN

Toronto Central LHIN

Use of TCHPP Data in Community Health Planning

Nathalie Sava

Date: April 15, 2016

Ontario
Local Health Integration Network

Purpose of Study - Primary Care Enrollment/Continuity

- **Problem #1:** What areas of the TC LHIN have the highest number of individuals that are:

  a. Not attached to primary care?
  b. Have not made any primary care visits?
  c. Who have low continuity?

- **Problem #2:** What were the demographic characteristics and health outcomes of populations that are being underserved? (e.g. preventive health care, chronic disease management, health care utilization, and cost?)

Methodology

- This study was cross-sectional, using population-based administrative data holdings from April 1, 2011 to March 31, 2013 for adults age 18 and over.
- ICES used patient enrolment model data and Community Health Centre encounters to identify individuals attached to a primary care provider
- Those considered to have low continuity of care made at least three primary care visits in the two years from 2011/12 to 2012/13 and had less than 50% of visits to the same provider.

Primary Care Enrollment/Continuity Data

TCHPP Table → Primary Care: Enrolment and Continuity of Care (Both sexes, Ages 19+) for Toronto Neighbourhoods and Toronto Central LHIN, 2012/13

Population Enrolled:

- Population rostered with a Patient Enrolment Model (PEM) or registered with a Community Health Centre (CHC)

Population Non-Enrolled:

- Population not rostered with a PEM or a CHC. May include patients that visit walk-in clinics, solo family physicians (i.e. fee for service), etc.

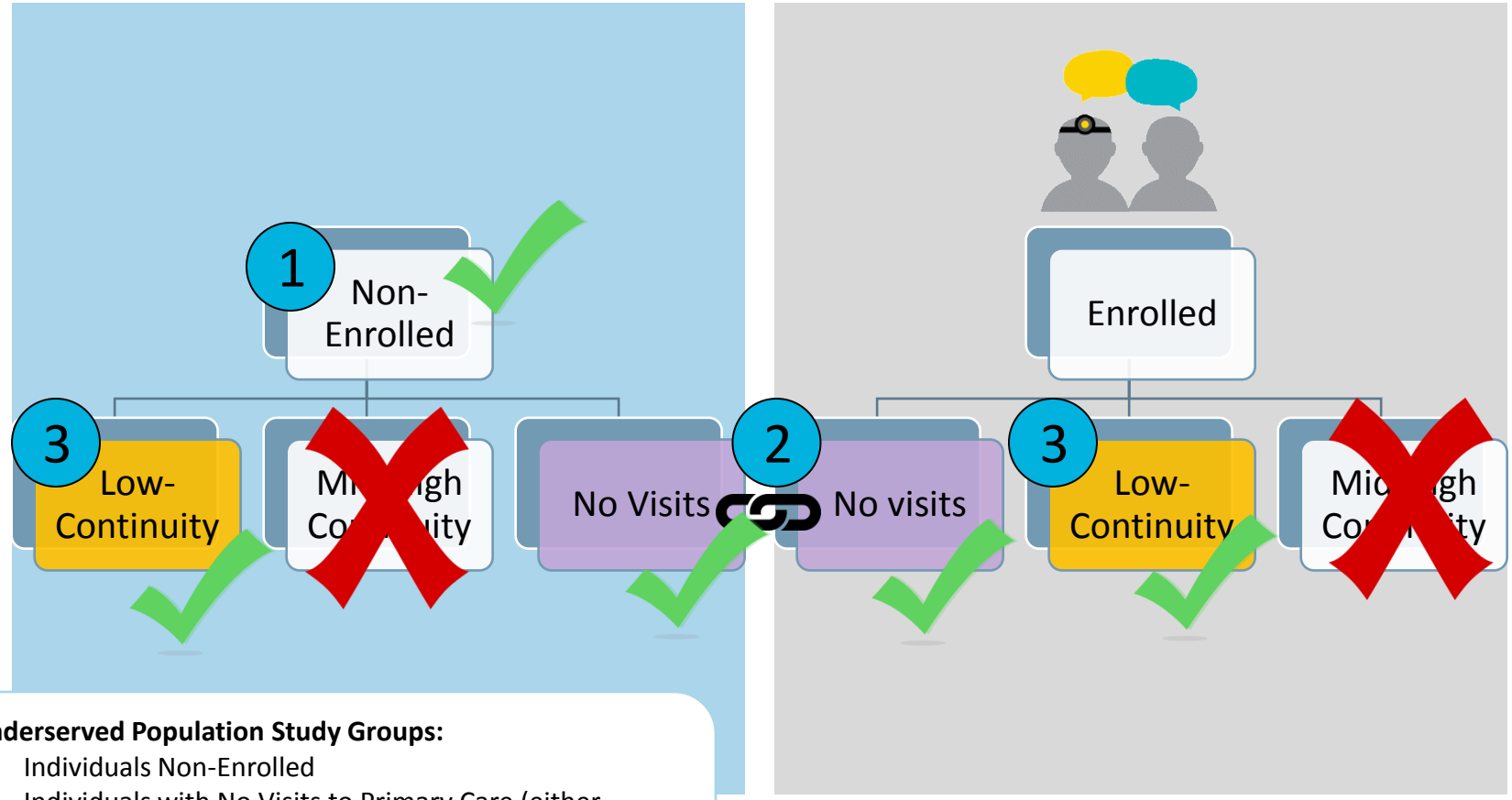
Continuity

Measurement of Continuity is limited to those with at least 3 primary visits in the previous 2 years:

- **Low:** <50% of total visits to the same provider
- **Medium:** 50-80% of totals visits of the same provider
- **High:** >80% of total visits to the same provider

Source: TCHPP, 2015

Underserved Study Populations of Interest



Underserved Population Study Groups:

1. Individuals Non-Enrolled
2. Individuals with No Visits to Primary Care (either enrolled or not enrolled)
3. Individuals Enrolled/Non-Enrolled with Low Continuity (3+ visits within past 2 years)

Primary Care Enrollment/Continuity Background

27.7% of residents are non-enrolled

1 Non-Enrolled

- Younger, recent immigrants
- Mixed use of health care resources

  Most likely to use fee-for-service/walk-in clinics
- Highly heterogeneous group

  Lower cost/lower health system use

11.5% of residents (0 visits)

2 No Primary Care Visits

- More likely to be young, male, healthier
- Fewer cancer screenings
- Fewer diabetes screenings
- Lower ED use
- Fewer specialist visits
- Fewer hospital admissions
- Lowest healthcare use
- Lowest costs

  Most likely not enrolled

30.6% of residents had low-continuity of care

3 Low Continuity of Care (3+ Visits)

- Lower rates of preventative screening

  Lower rates of chronic disease management
- Higher ED use

  Higher benzodiazepine use
- High level of admissions/re-admissions
- **Highest cost <u>of any group</u>**

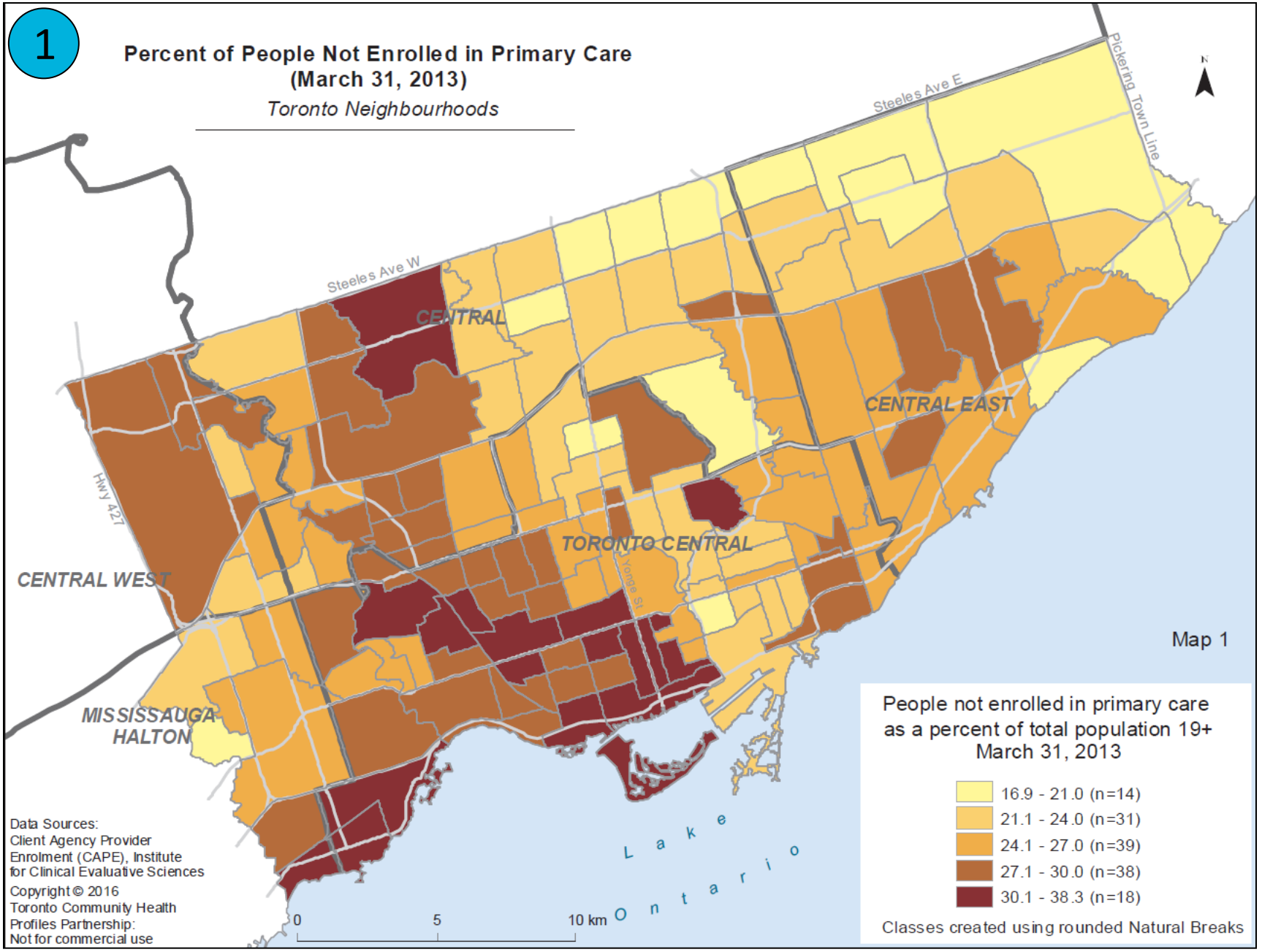
Groups Over-Represented in Underserved:

- Age 19-44
- Males
- Low-income neighbourhoods
- Recent immigrants
- Low health care use
- Low co-morbidities

Groups with 3+ Visits:

- Older
- More likely female
- Average income
- Higher expected resource use
- Higher co-morbidities
- Most likely to be enrolled

Highest rate of ED use amongst those not enrolled and no primary care visits


1
Percent of People Not Enrolled in Primary Care
(March 31, 2013)
Toronto Neighbourhoods
Steeles Ave E
Pickering Town Line
Steeles Ave W
CENTRAL
CENTRAL EAST
Hwy 427
TORONTO CENTRAL
Yonge St
CENTRAL WEST
MISSISSAUGA HALTON
Lake Ontario
0
5
10 km
Map 1
People not enrolled in primary care as a percent of total population 19+ March 31, 2013
16.9 - 21.0 (n=14)
21.1 - 24.0 (n=31)
24.1 - 27.0 (n=39)
27.1 - 30.0 (n=38)
30.1 - 38.3 (n=18)
Classes created using rounded Natural Breaks
Data Sources:
Client Agency Provider Enrolment (CAPE), Institute for Clinical Evaluative Sciences
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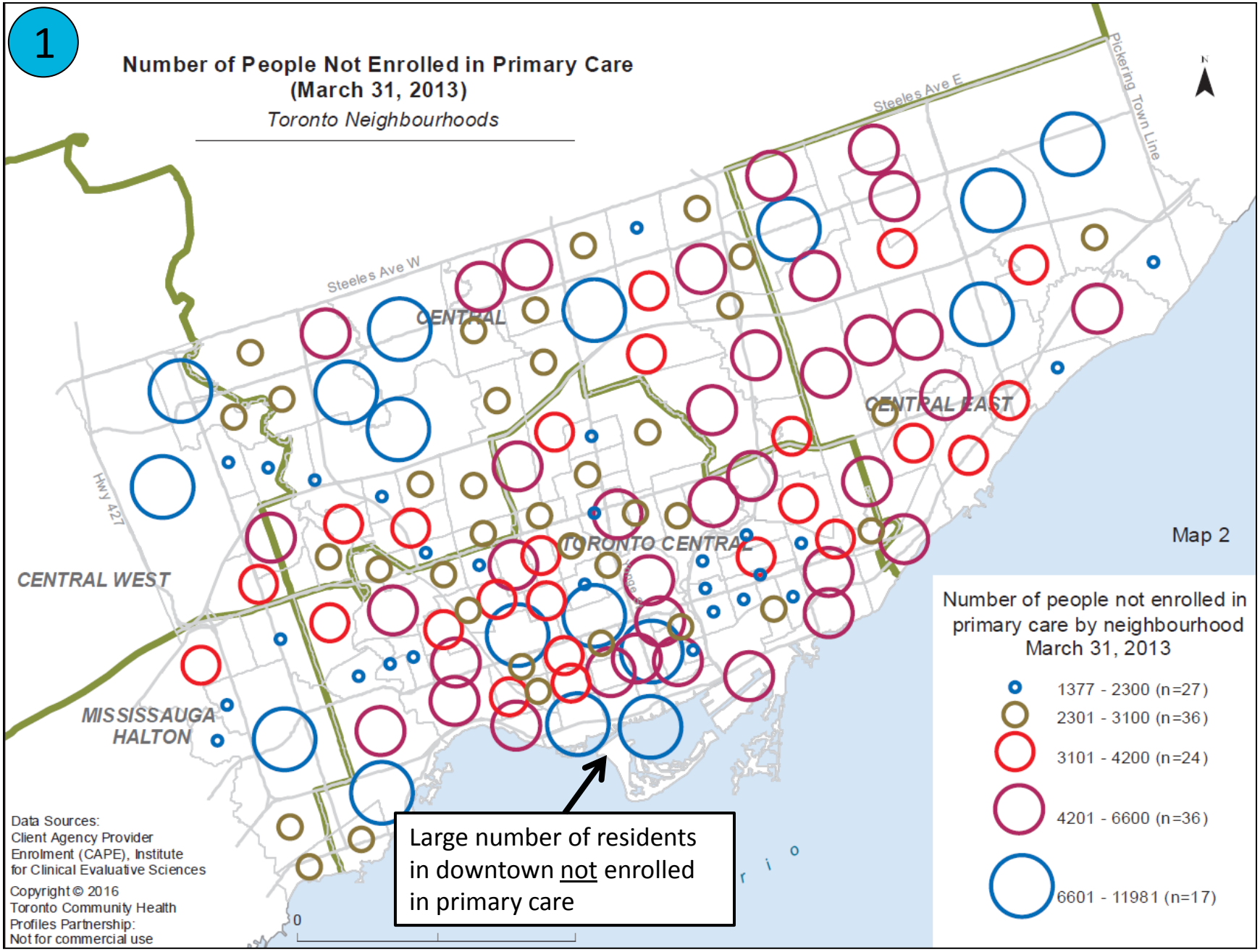
1


Number of People Not Enrolled in Primary Care
(March 31, 2013)
Toronto Neighbourhoods
Steeles Ave E
Pickering Town Line
Steeles Ave W
CENTRAL
CENTRAL EAST
Hwy 427
TORONTO CENTRAL
CENTRAL WEST
MISSISSAUGA
HALTON
Map 2
Number of people not enrolled in primary care by neighbourhood March 31, 2013
1377 - 2300 (n=27)
2301 - 3100 (n=36)
3101 - 4200 (n=24)
4201 - 6600 (n=36)
6601 - 11981 (n=17)
Large number of residents in downtown not enrolled in primary care
Data Sources:
Client Agency Provider Enrolment (CAPE), Institute for Clinical Evaluative Sciences
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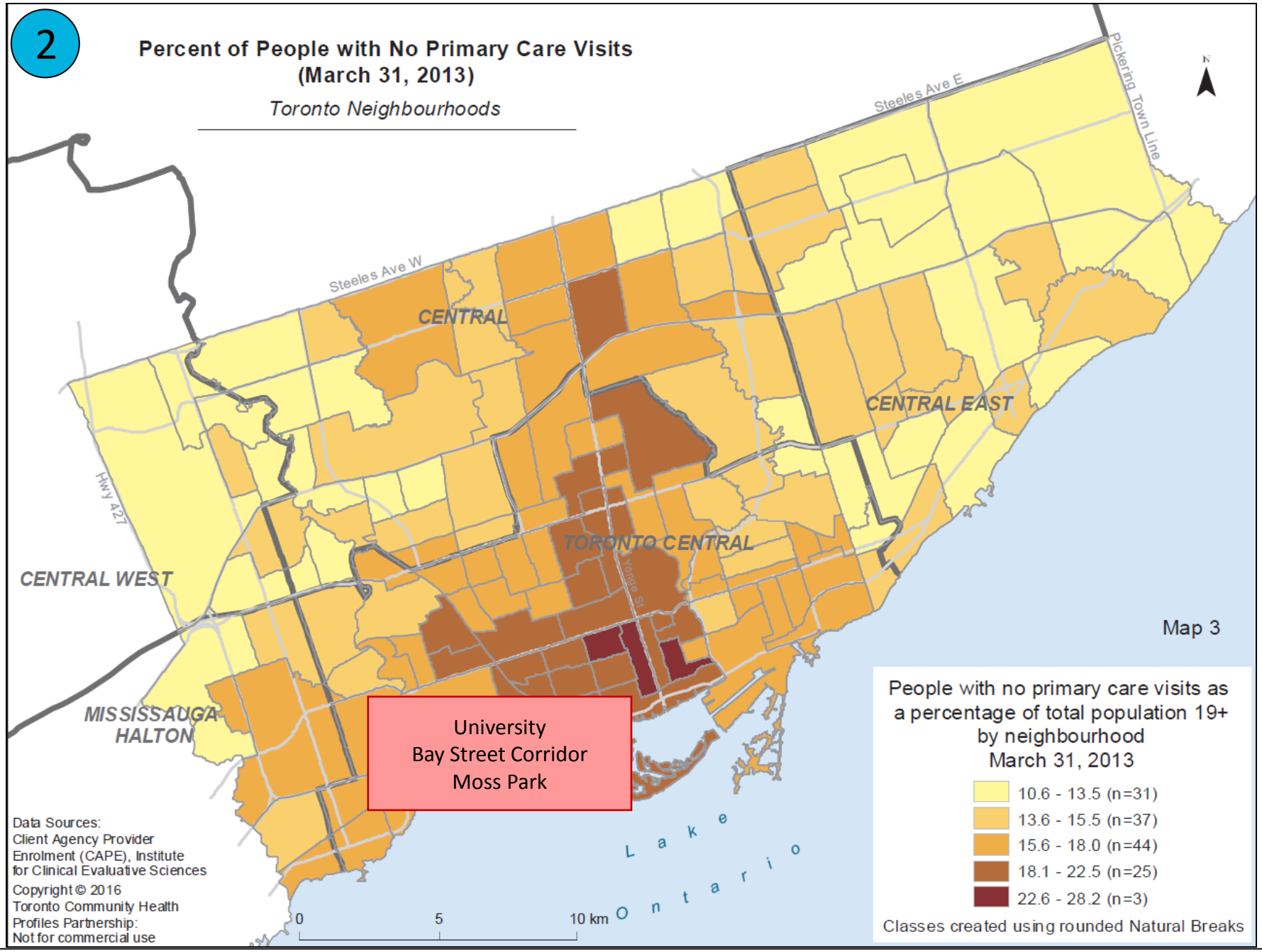
2

Percent of People with No Primary Care Visits (March 31, 2013)

Toronto Neighbourhoods



Data Sources:
Client Agency Provider Enrolment (CAPE), Institute for Clinical Evaluative Sciences

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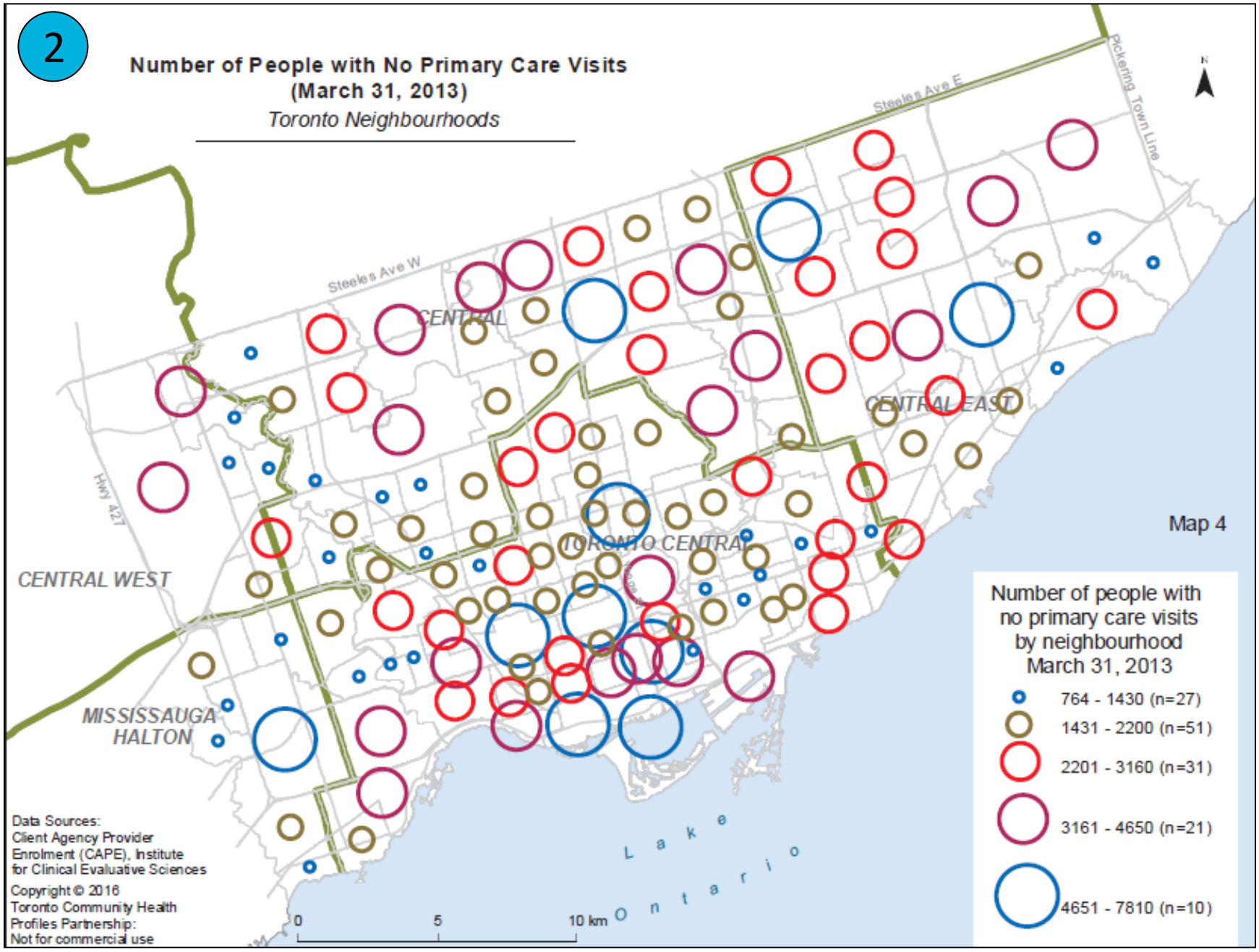
Number of People with No Primary Care Visits
(March 31, 2013)
Toronto Neighbourhoods
Steeles Ave W
Steeles Ave E
Pickering Town Line
Hwy 427
CENTRAL
CENTRAL EAST
TORONTO CENTRAL
CENTRAL WEST
MISSISSAUGA HALTON
Lake Ontario
0
5
10 km
Map 4
Number of people with no primary care visits by neighbourhood March 31, 2013
764 - 1430 (n=27)
1431 - 2200 (n=51)
2201 - 3160 (n=31)
3161 - 4650 (n=21)
4651 - 7810 (n=10)
Data Sources:
Client Agency Provider Enrolment (CAPE), Institute for Clinical Evaluative Sciences
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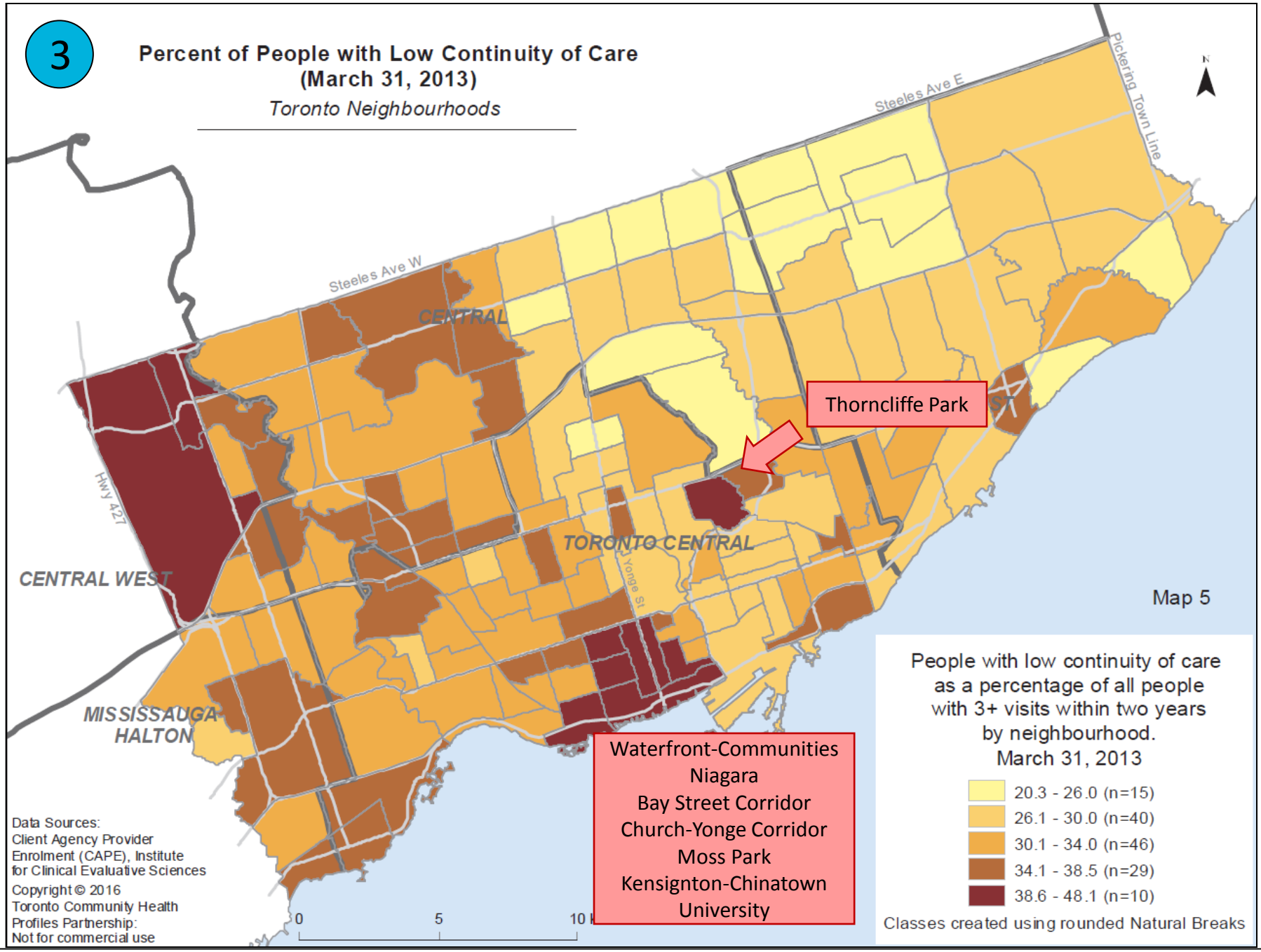
3
Percent of People with Low Continuity of Care
(March 31, 2013)
Toronto Neighbourhoods
Steeles Ave E
Pickering Town Line
Steeles Ave W
CENTRAL
Thorncliffe Park
HWY 427
TORONTO CENTRAL
Yonge St
CENTRAL WEST
MISSISSAUGA-
HALTON
Map 5
Waterfront-Communities
Niagara
Bay Street Corridor
Church-Yonge Corridor
Moss Park
Kensignton-Chinatown
University
People with low continuity of care
as a percentage of all people
with 3+ visits within two years
by neighbourhood.
March 31, 2013
20.3 - 26.0 (n=15)
26.1 - 30.0 (n=40)
30.1 - 34.0 (n=46)
34.1 - 38.5 (n=29)
38.6 - 48.1 (n=10)
Classes created using rounded Natural Breaks
Data Sources:
Client Agency Provider
Enrolment (CAPE), Institute
for Clinical Evaluative Sciences
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Profiles Partnership:
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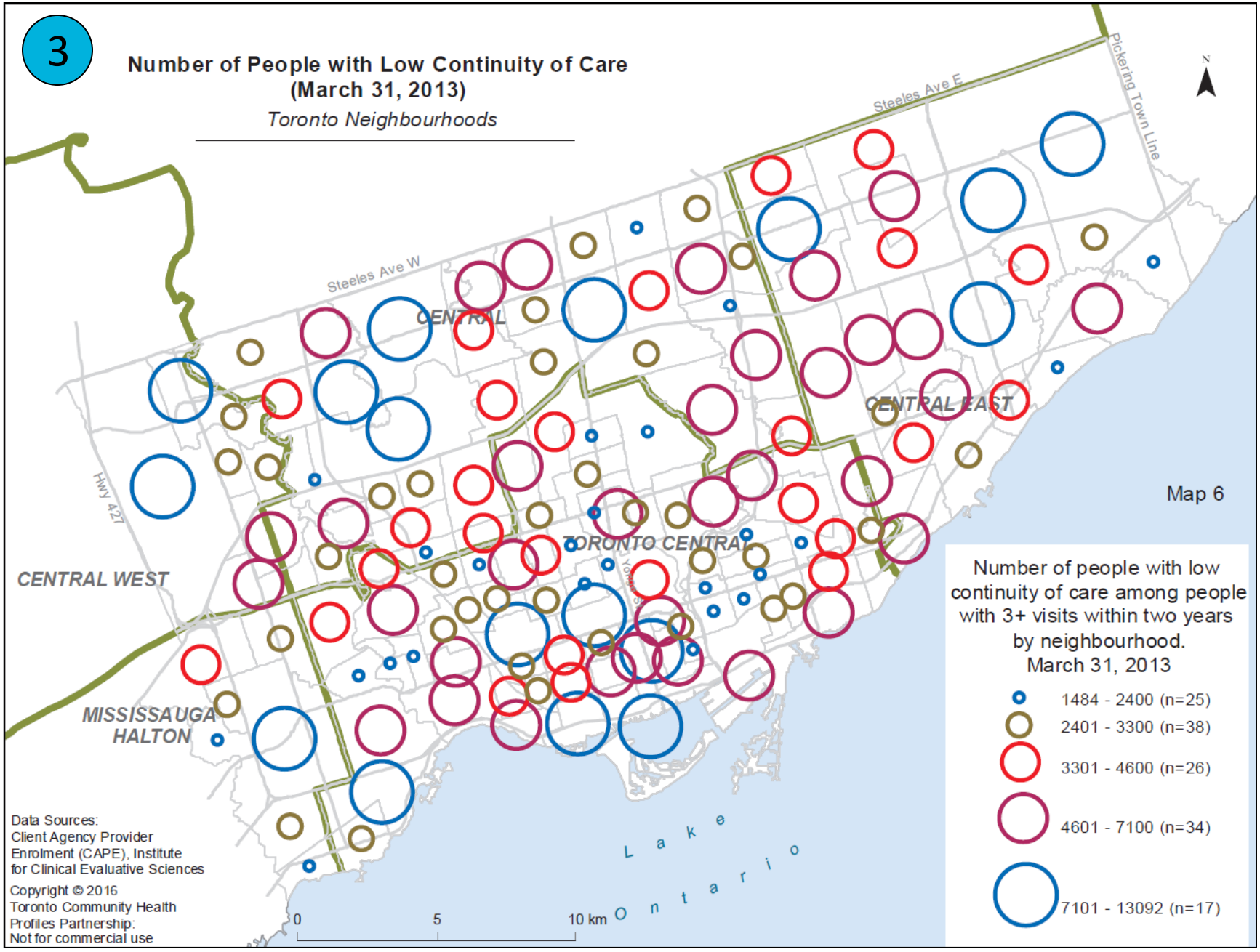
0
5
10

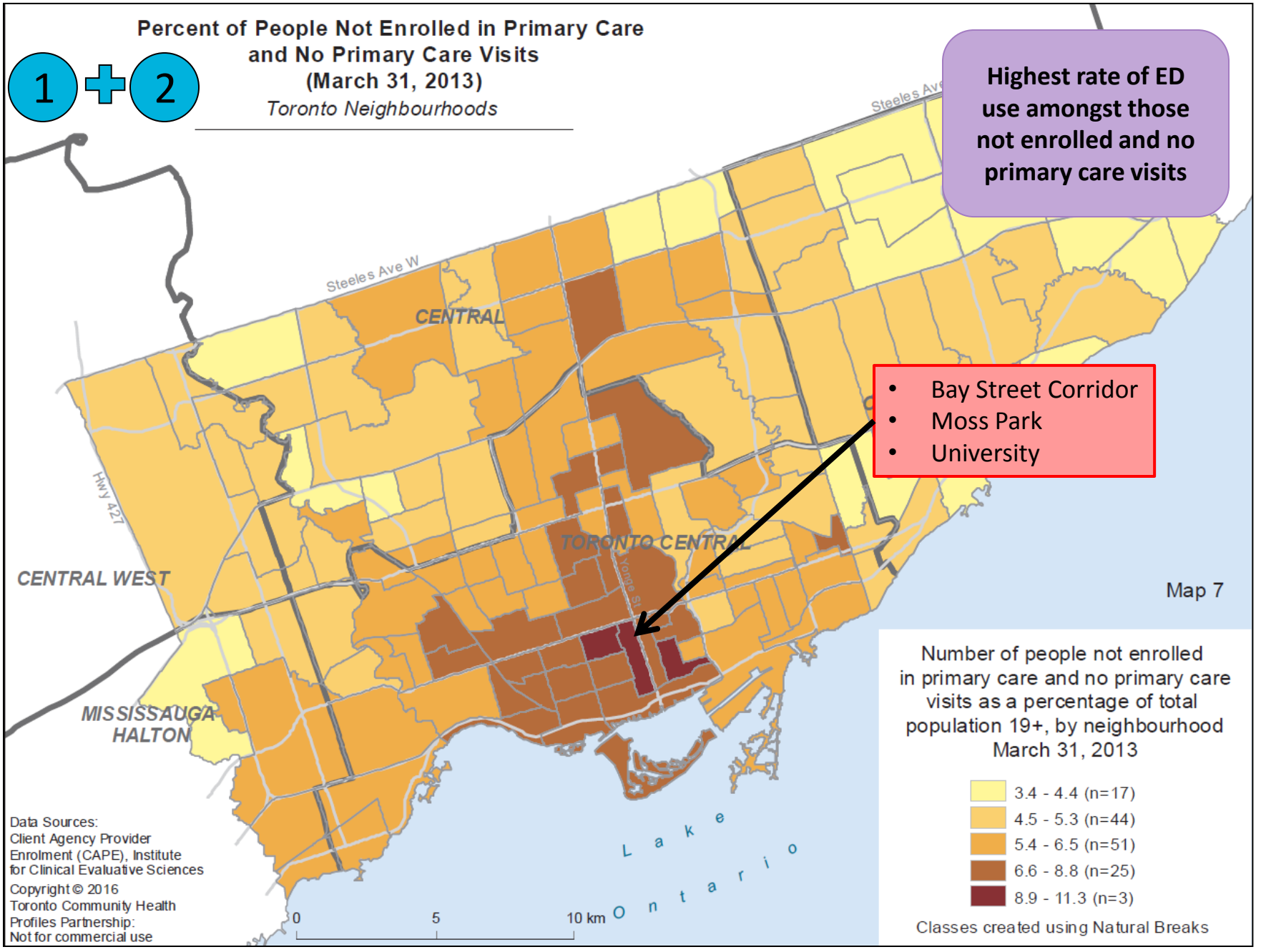
3

Number of People with Low Continuity of Care (March 31, 2013)

Toronto Neighbourhoods



Data Sources:
Client Agency Provider Enrolment (CAPE), Institute for Clinical Evaluative Sciences


1 + 2
Percent of People Not Enrolled in Primary Care and No Primary Care Visits (March 31, 2013)
Toronto Neighbourhoods
Highest rate of ED use amongst those not enrolled and no primary care visits
Steeles Ave W
CENTRAL
Hwy 427
CENTRAL WEST
TORONTO CENTRAL
Yonge St
MISSISSAUGA HALTON
Lake Ontario
Bay Street Corridor
Moss Park
University
Map 7
Number of people not enrolled in primary care and no primary care visits as a percentage of total population 19+, by neighbourhood March 31, 2013
3.4 - 4.4 (n=17)
4.5 - 5.3 (n=44)
5.4 - 6.5 (n=51)
6.6 - 8.8 (n=25)
8.9 - 11.3 (n=3)
Classes created using Natural Breaks
0
5
10 km
Data Sources:
Client Agency Provider Enrolment (CAPE), Institute for Clinical Evaluative Sciences
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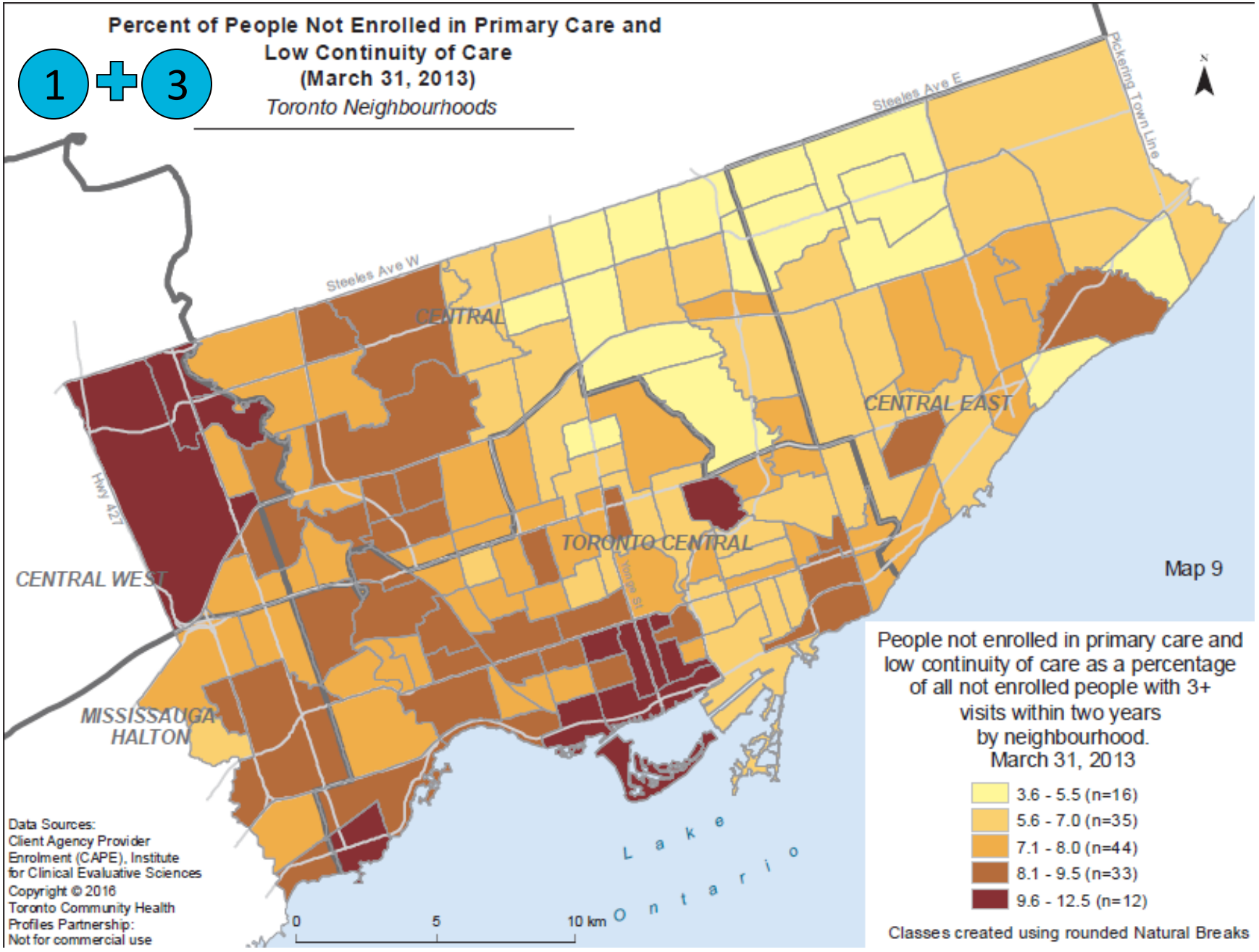
Percent of People Not Enrolled in Primary Care and Low Continuity of Care (March 31, 2013)
Toronto Neighbourhoods
1 + 3
Steeles Ave E
Pickering Town Line
Steeles Ave W
CENTRAL
CENTRAL EAST
Hwy 427
TORONTO CENTRAL
Yonge St
CENTRAL WEST
MISSISSAUGA HALTON
Lake Ontario
0
5
10 km
N
Map 9
People not enrolled in primary care and low continuity of care as a percentage of all not enrolled people with 3+ visits within two years by neighbourhood. March 31, 2013
3.6 - 5.5 (n=16)
5.6 - 7.0 (n=35)
7.1 - 8.0 (n=44)
8.1 - 9.5 (n=33)
9.6 - 12.5 (n=12)
Classes created using rounded Natural Breaks
Data Sources:
Client Agency Provider Enrolment (CAPE), Institute for Clinical Evaluative Sciences
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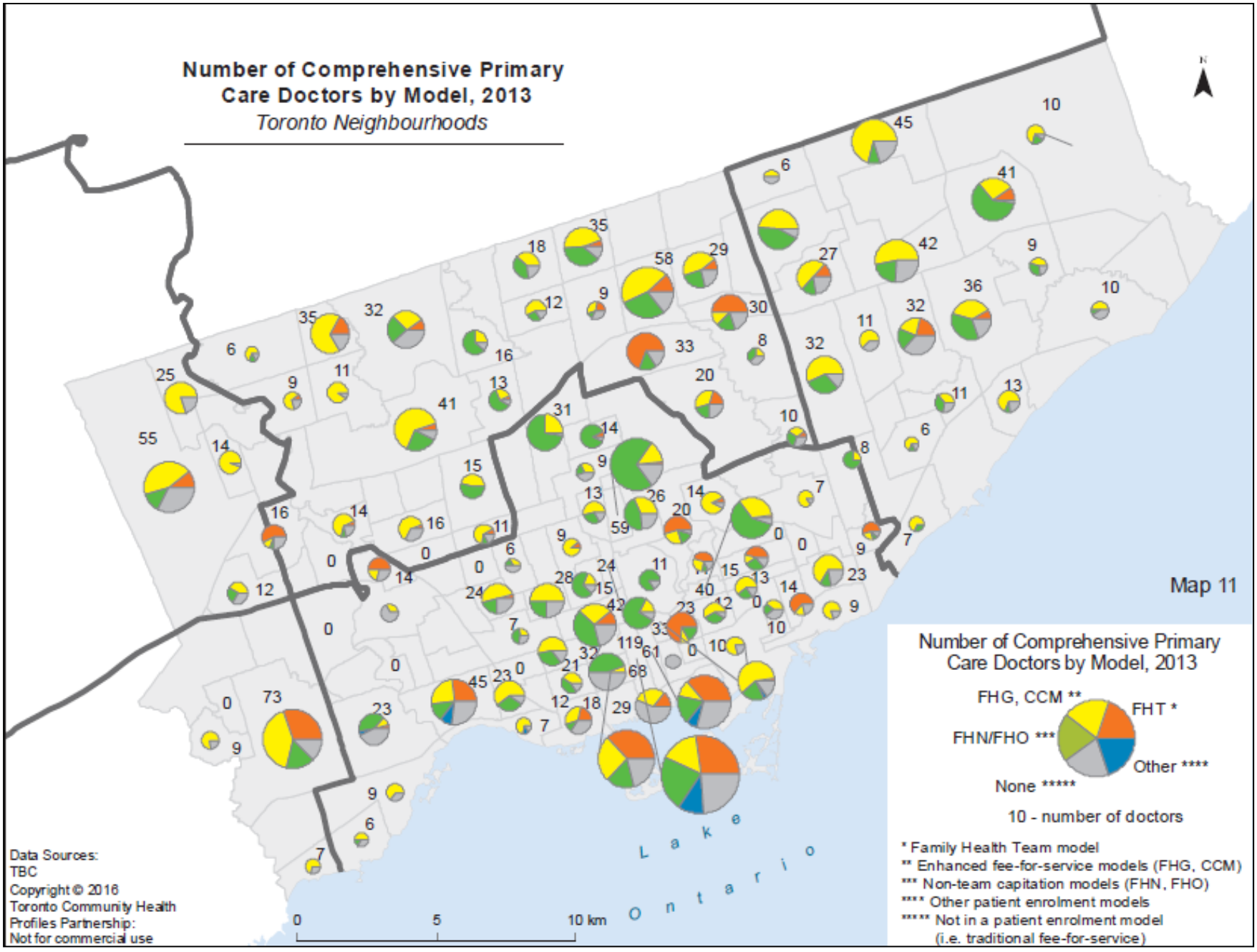
Number of Comprehensive Primary Care Doctors by Model, 2013
Toronto Neighbourhoods
Map 11
Number of Comprehensive Primary Care Doctors by Model, 2013
FHG, CCM **
FHT *
FHN/FHO ***
Other ****
None *****
10 - number of doctors
* Family Health Team model
** Enhanced fee-for-service models (FHG, CCM)
*** Non-team capitation models (FHN, FHO)
**** Other patient enrolment models
***** Not in a patient enrolment model
(i.e. traditional fee-for-service)
Data Sources:
TBC
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0
5
10 km
Lake Ontario

Primary Care Enrollment/Continuity Data

Enrollment

	Population Enrolled			Population Non-Enrolled			Total Population Enrolled & Non-Enrolled		
Oakwood Vaughan Neighbourhood	Total Pop. Enrolled	Pop. with No Visits	Pop. with 1 or 2 Visits	Total Pop. Non-Enrolled	Pop. with No Visits	Pop. with 1 or 2 Visits	Total Pop. Enrolled & Non-Enrolled	Pop. with No Visits	Pop. with 1 or 2 Visits
Oakwood Village	12083	761	1971	4902	973	1001	16985	1734	2972

Continuity

Oakwood Vaughan Neighbourhood	Population with 3+ Visits	Low Continuity (<50%)	Medium Continuity (50-79%)	High Continuity (80+%)	% Low Continuity	% Medium Continuity	% High Continuity
Population **Enrolled** with at Least 3 Visits in the Previous 2 years	9351	2348	1973	5030	25.1	21.1	53.8
Population **Non-Enrolled** with at Least 3 Visits in the Previous 2 years	2928	1158	378	1392	39.5	12.9	47.5
Total Population **Enrolled & Non-Enrolled** with at Least 3 Visits in the Previous 2 years	12279	3506	2351	6422	28.6	19.1	52.3

Source: TCHPP, 2015

Primary Care Enrollment/Continuity Data

Top 10 Neighbourhoods with Lowest % Enrollment

Neighbourhood Name	Total Population, Both sexes, Ages 19+	Total Population Enrolled	% Enrolled
University	7584	4683	61.7
Bay Street Corridor	16280	10391	63.8
North St. James Town	14944	10047	67.2
Moss Park	16032	10869	67.8
Rockcliffe-Smythe	18124	12317	68.0
Thorncliffe Park	13861	9436	68.1
York University Heights	22629	15443	68.2
Long Branch	7928	5435	68.6
New Toronto	9018	6188	68.6
Annex	25459	17525	68.8

City of Toronto range: 61.7% to 83.1%

What factors in these neighbourhoods contribute to **low enrollment rates**?

Top 10 Neighbourhoods with Highest % of Low Continuity and Non-Enrolled

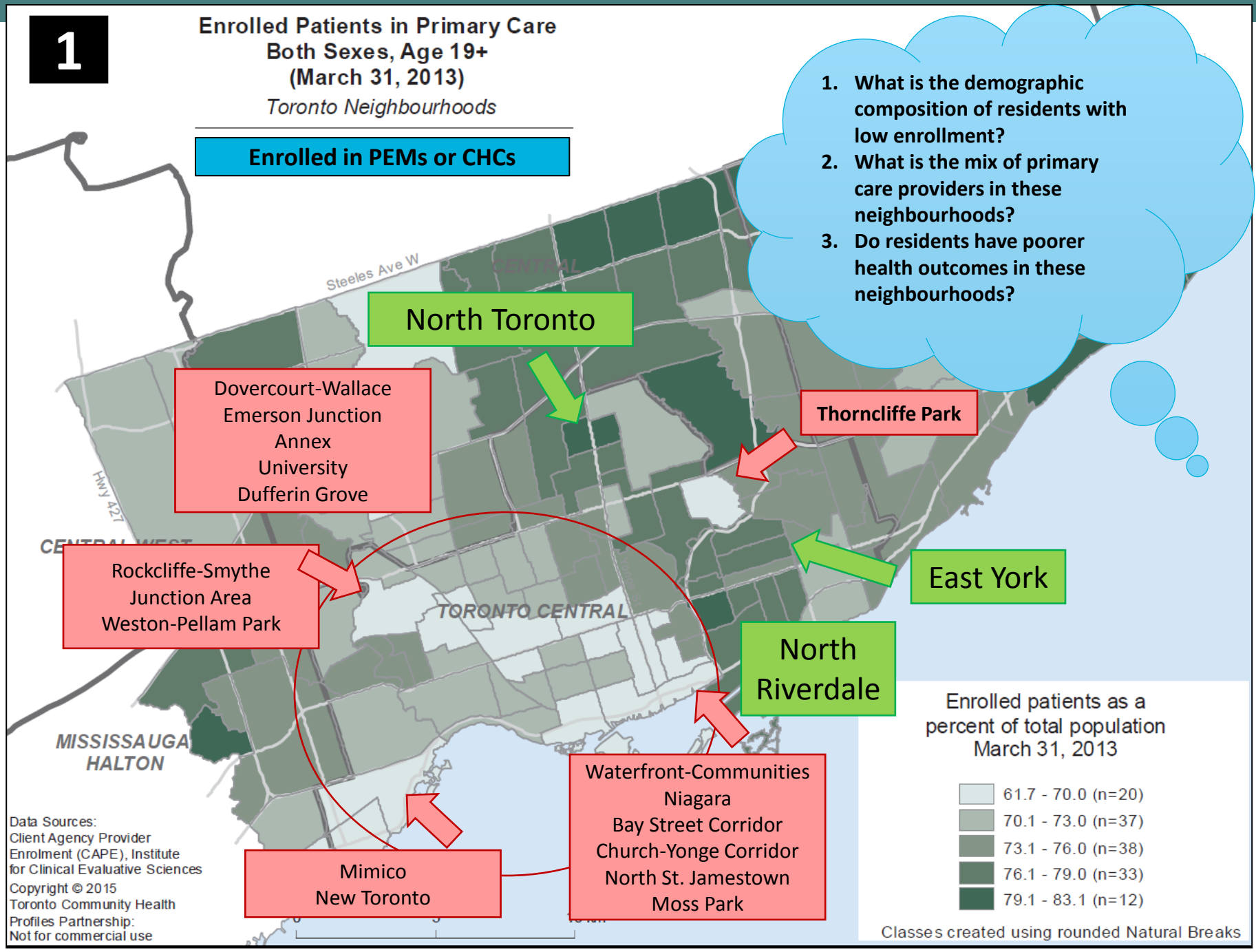
Neighbourhood Name	Total Population, Both sexes, Ages 19+	Total Population Non-Enrolled	Low Continuity (<50%)	% Low Continuity and Non-Enrolled
Thorncliffe Park	13861	4425	1507	10.9
Mount Olive-Silverstone-Jamestown	25140	7504	2596	10.3
Thistletown-Beaumond Heights	8548	2566	844	9.9
West Humber-Clairville	27552	7457	2701	9.8
University	7584	2901	740	9.8
New Toronto	9018	2830	871	9.7
Niagara	24701	7540	2360	9.6
North St. James Town	14944	4897	1382	9.2
Rustic	7584	2274	679	9.0
Bay Street Corridor	16280	5889	1454	8.9

City of Toronto range: 3.1% to 10.9%

What factors in these neighbourhoods contribute to **low continuity** amongst non-enrolled patients?

Source: TCHPP, 2015

How Can we Use TCHPP data?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Enrolled Patients in Primary Care
Both Sexes, Age 19+
(March 31, 2013)
Toronto Neighbourhoods
Enrolled in PEMs or CHCs
1. What is the demographic composition of residents with low enrollment?
2. What is the mix of primary care providers in these neighbourhoods?
3. Do residents have poorer health outcomes in these neighbourhoods?
North Toronto
Dovercourt-Wallace
Emerson Junction
Annex
University
Dufferin Grove
Thorncliffe Park
East York
Rockcliffe-Smythe
Junction Area
Weston-Pellam Park
North Riverdale
Waterfront-Communities
Niagara
Bay Street Corridor
Church-Yonge Corridor
North St. Jamestown
Moss Park
Mimico
New Toronto
Steeles Ave W
Hwy 427
CENTRAL
TORONTO CENTRAL
MISSISSAUGA HALTON
Enrolled patients as a percent of total population
March 31, 2013
61.7 - 70.0 (n=20)
70.1 - 73.0 (n=37)
73.1 - 76.0 (n=38)
76.1 - 79.0 (n=33)
79.1 - 83.1 (n=12)
Classes created using rounded Natural Breaks
Data Sources:
Client Agency Provider Enrolment (CAPE), Institute for Clinical Evaluative Sciences
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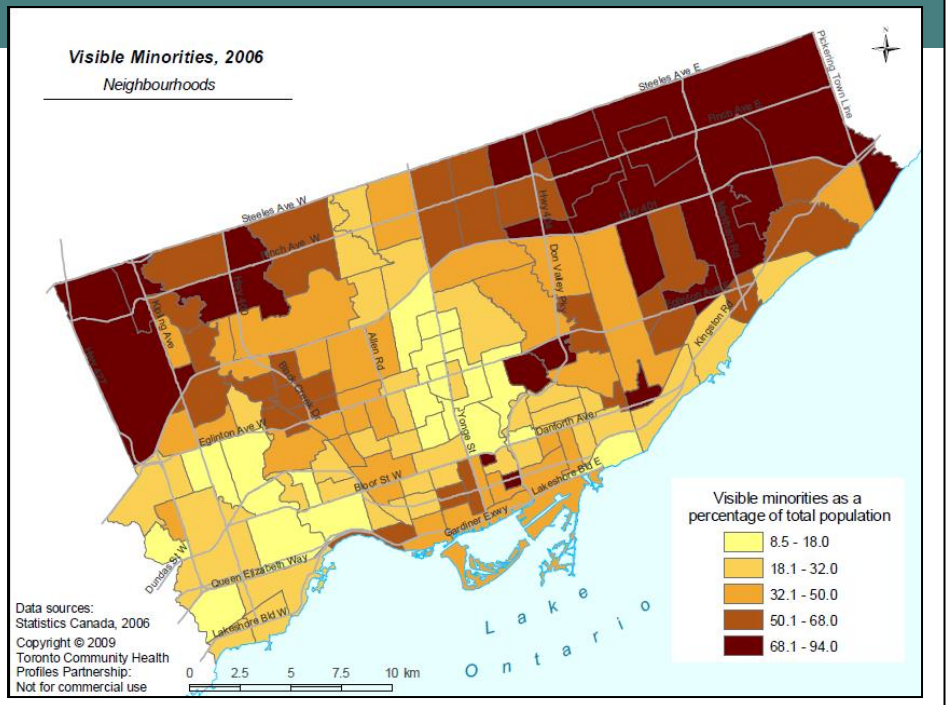
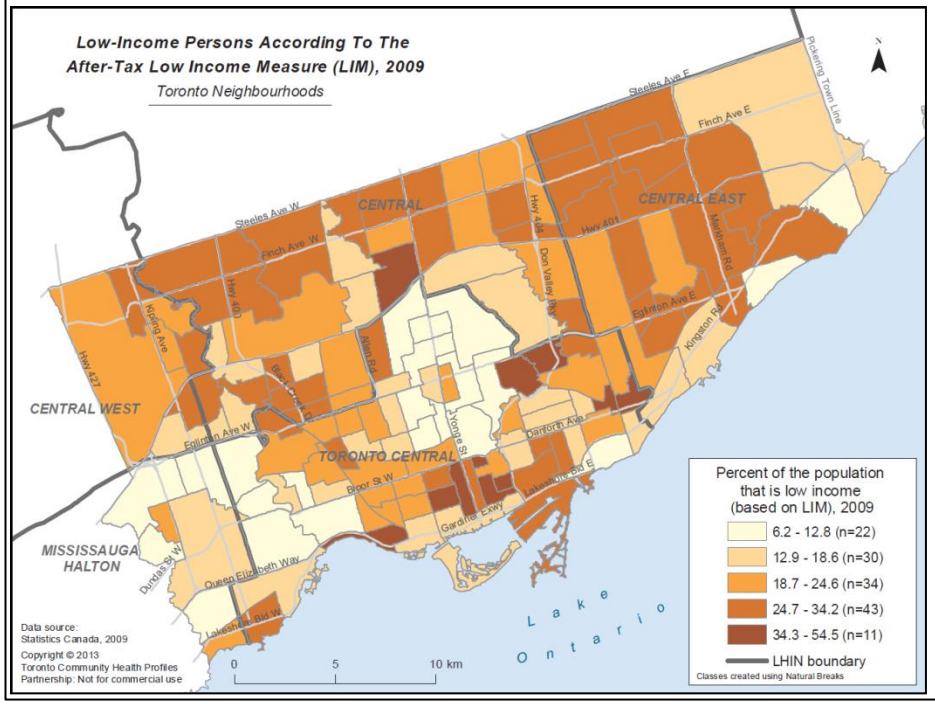
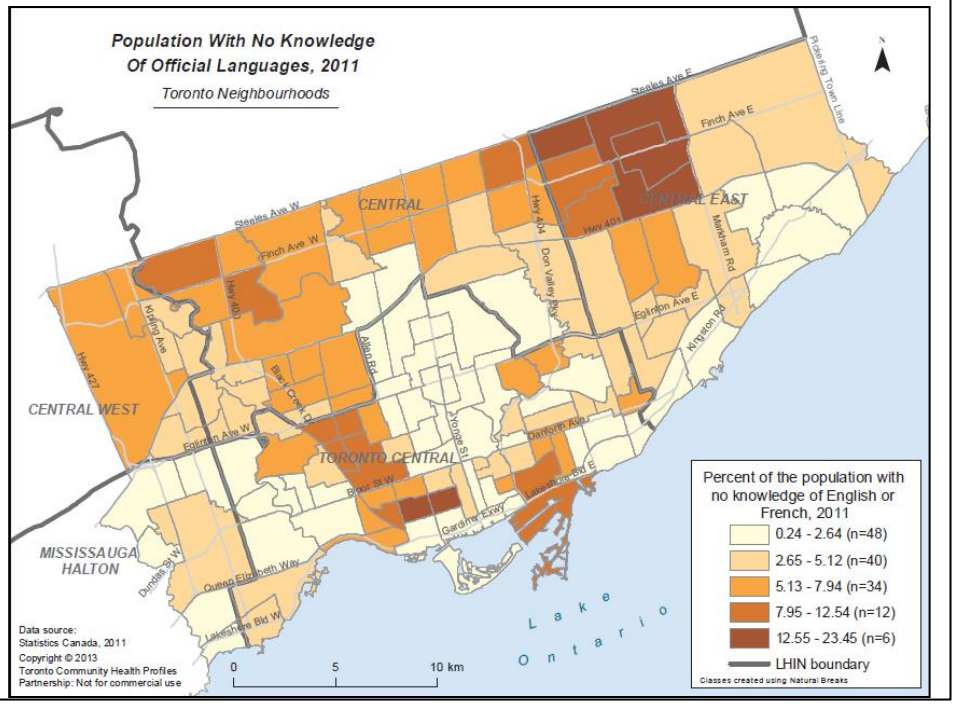
1. What is the demographic composition of residents with low enrollment?

TCHPP contains a wide range of sociodemographic data at the neighbourhood, Health Link, LHIN, and City of Toronto level to support demographic analysis, including:

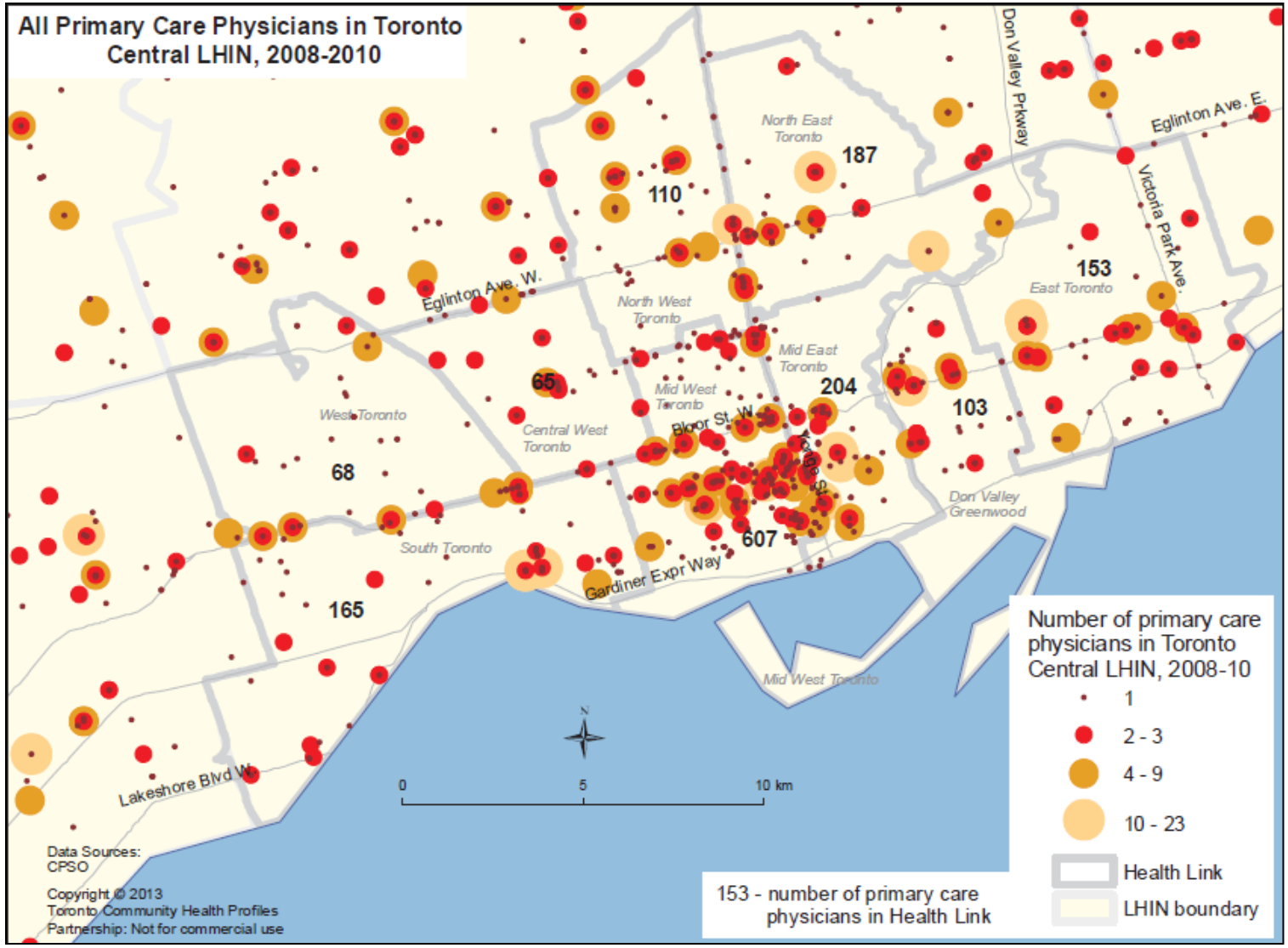
- Population (Youth, Seniors)
- Persons Living Alone
- Lone parent families
- Median household income
- Low income families
- % occupied private dwellings
- Education
- Mobility
- Languages Spoken
- Immigration
- Visible Minorities
- Aboriginal Population
- Ontario Marginalization Index







2. What is the mix of primary care providers in these neighbourhoods?



Large number of primary care providers concentrated near:

Yonge/ Eglinton

Yonge/Bloor

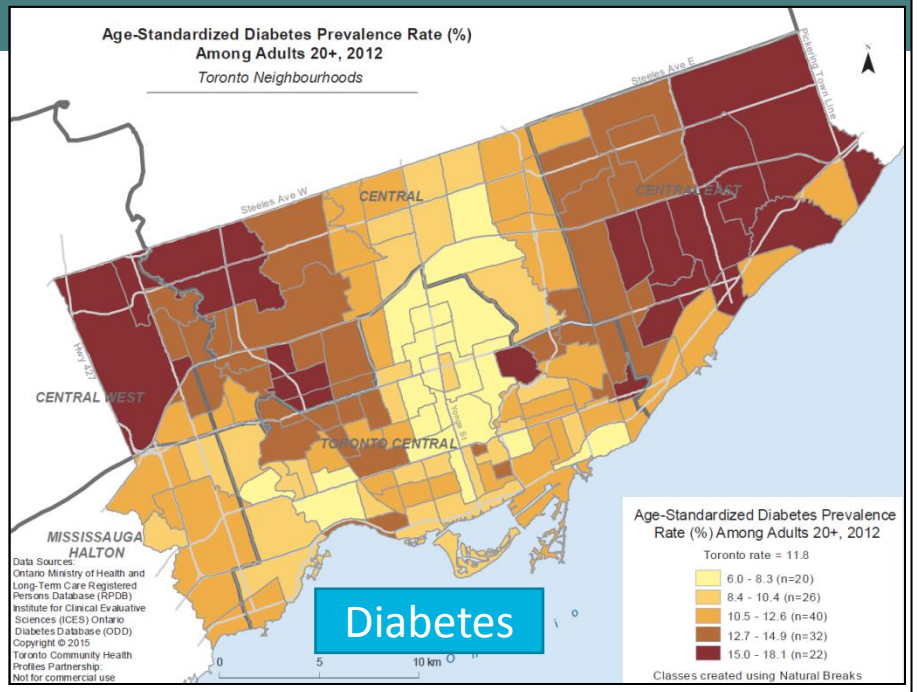
Downtown Core

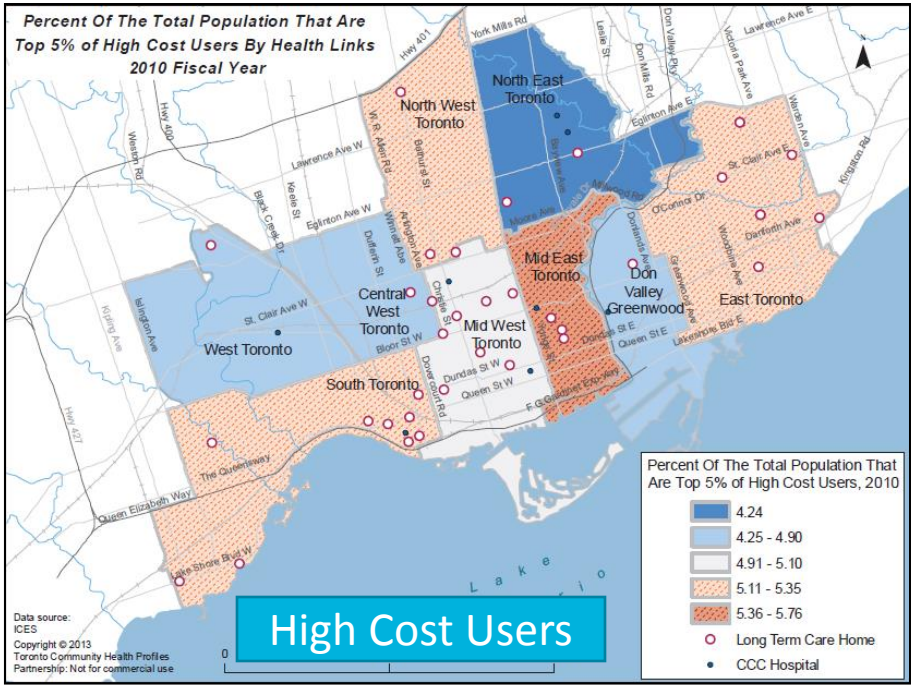
Danforth

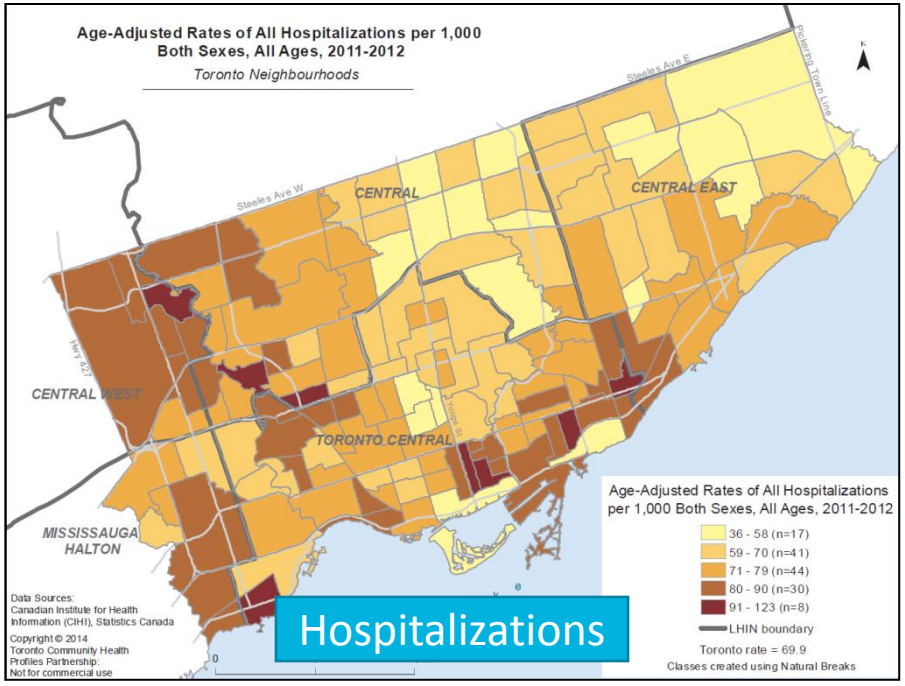
3. Do residents have poorer health outcomes in these neighbourhoods?

TCHPP contains a wide range of health outcome data at the neighbourhood, Health Link, LHIN:

- Chronic Disease Prevalence Rates (e.g. Diabetes, Asthma, High Blood Pressure, Mental Health, COPD)
- Hospital Admission Rates (Medical, Surgical, Prenatal, MH)
- ALC Days
- ED Visits (All Visits, Low Triage, Repeat Visits)
- Rates of Eye Exams
- Prevention Indicators (e.g. Mammography, Pap Smears, Colorectal Cancer, FOBT)
- High Cost Users (Top 1 and 5%)







Summary of Primary Care Data and Future Uses

Various factors to consider when using planning data for primary care:

- How do demographic variations affect continuity? (e.g. are there sufficient language or ethno-cultural specific providers in the neighbourhood?)
  - Example: Analyze availability of ethno-cultural providers in West Toronto

- Which areas of the LHIN exhibit low physician volumes? (e.g. do areas with low physician volumes demonstrate low continuity rates?)
  - Action: Analyze per capita rates of physicians at the neighbourhood level. Plan future coverage of areas with low physician volumes.

- How do health outcomes vary by geographic region?
  - Action: How can primary care/community care providers in these regions collaborate to support better health outcomes? Track outcomes overtime to determine whether health outcomes have improved.

Other Examples of Use of TCHPP Data

- **Diabetes**
  - Determine areas of high prevalence cross-examined with catchment areas and availability of providers for Diabetes Education Programs/Diabetes Education Centres (i.e. gap analysis)

- **Neighbourhood Planning** (Thorncliffe/Flemingdon Park)
  - Examined high risk health factors impacting population health of two neighbourhoods in planning new community resources

- **Health Links**
  - Provided complete profile of Health Link regions to assist HL Leads in determining neighbourhood level variations and most prevalent health issues impacting the region

Thank You For Listening!