

# What Causes Ill Health in Niagara?

Public Health & Social Services Committee  
May 7, 2019

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# Outline

- Top Illnesses & Risk Behaviours
- The Life Course
- Putting Them Together #1
  - Top Illnesses Across the Life Course
  - Top Risk Factors Across the Life Course
- Social Determinants of Health
- Putting Them Together #2
  - Top Illnesses Across Social Determinants of Health Gradients

# Top Illnesses & Risk Behaviours

# The Data

Indicators	Where did it come from?	Type of analysis	Years available
Self-reported behaviours	Canadian Community Health Survey	Percent with the reported condition	2011-2014
Self-reported conditions	Canadian Community Health Survey	Percent engaging in the behaviour	2011-2014
Infectious disease incidence	iPHIS	Incidence rate per 100,000	2011-2013
EMS transports	EMS Edge	Frequency of occurrence	2013-2015
Injuries that report to EDs	National Ambulatory Care Reporting System	Diagnoses per 100,000	2011-2013
ED visit diagnoses	National Ambulatory Care Reporting System	Diagnoses per 100,000	2011-2013
Hospital discharge diagnoses	Discharge Abstract Database	Hospital admissions per 100,000	2011-2013
Mortality	Vital Statistics	Causes of death per 100,000	2009-2011

# Top Health Issues in Niagara

- Cancer
- Circulatory system infections and diseases
- Diabetes
- Digestive system infections and diseases
- Injuries
- Maternal/reproduction
- Mental health (including dementia)
- Poisoning
- Respiratory infections and diseases
- Sexually transmitted infections

# The Life Course

The Past Shaping the Future

1

**LATENT EFFECTS**

Experiences, particularly during sensitive periods, that influence health later in life.

2

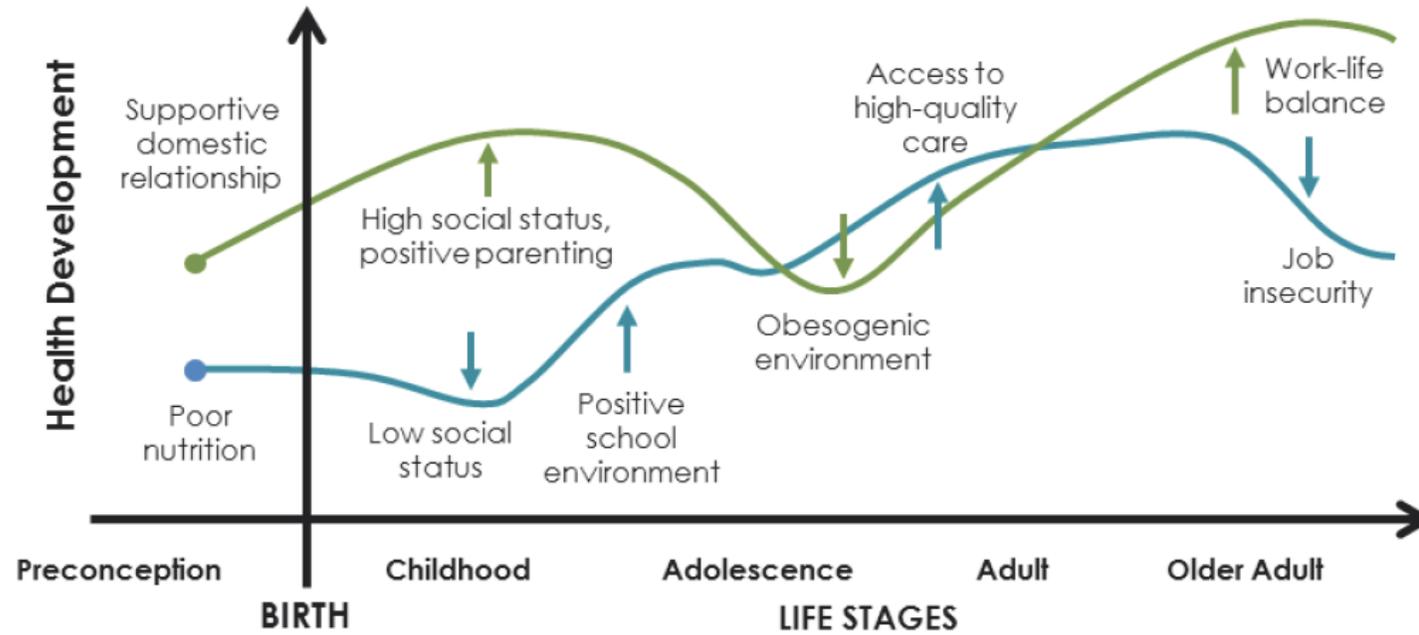
**PATHWAY EFFECTS**

Experiences that set people on certain health development trajectories.

3

**CUMULATIVE EFFECTS**

Experiences that accumulate over time and manifests in health. A combination of latent and pathway effects.



**PHASES OF HEALTH DEVELOPMENT**



*Reproduced with permission from Halfon, Larson, Lu, et al (2014)*

# Putting It Together #1

Top Illnesses & Risk Behaviours Across the Life Course

# Emergency Department Visits

Niagara	1	2	3	4	5
0<1 years	Acute Upper Respiratory Infections	General Signs & Symptoms	Other Acute Lower Respiratory Infections	Middle Ear & Mastoid Diseases	Head Injuries
1-4 years	Acute Upper Respiratory Infections	Middle Ear & Mastoid Diseases	Head Injuries	General Signs & Symptoms	Intestinal Infectious Diseases
5-9 years	Acute Upper Respiratory Infections	Head Injuries	Middle Ear & Mastoid Diseases	Digestive/Abdominal Signs & Symptoms	Wrist & Hand Injuries
10-14 years	Wrist & Hand Injuries	Acute Upper Respiratory Infections	Ankle & Foot Injuries	Head Injuries	Elbow & Forearm Injuries
15-19 years	Wrist & Hand Injuries	Digestive/Abdominal Signs & Symptoms	Acute Upper Respiratory Infections	Head Injuries	Ankle & Foot Injuries
20-24 years	Digestive/Abdominal Signs & Symptoms	Wrist & Hand Injuries	Acute Upper Respiratory Infections	Head Injuries	Ankle & Foot Injuries
25-44 years	Digestive/Abdominal Signs & Symptoms	Wrist & Hand Injuries	Circulatory/Respiratory Signs & Symptoms	Acute Upper Respiratory Infections	Ankle & Foot Injuries
45-64 years	Exam/ Investigation	Circulatory/Respiratory Signs & Symptoms	Digestive/Abdominal Signs & Symptoms	Wrist & Hand Injuries	General Signs & Symptoms
65-74 years	Exam/ Investigation	Lens Disorders	Circulatory/Respiratory Signs & Symptoms	Digestive/Abdominal Signs & Symptoms	Benign Neoplasms
75-84 years	Lens Disorders	Circulatory/Respiratory Signs & Symptoms	Exam/ Investigation	General Signs & Symptoms	Digestive/Abdominal Signs & Symptoms
85+ years	Circulatory/Respiratory Signs & Symptoms	Other Forms of Heart Disease	General Signs & Symptoms	Other Urinary System Diseases	Lens Disorders

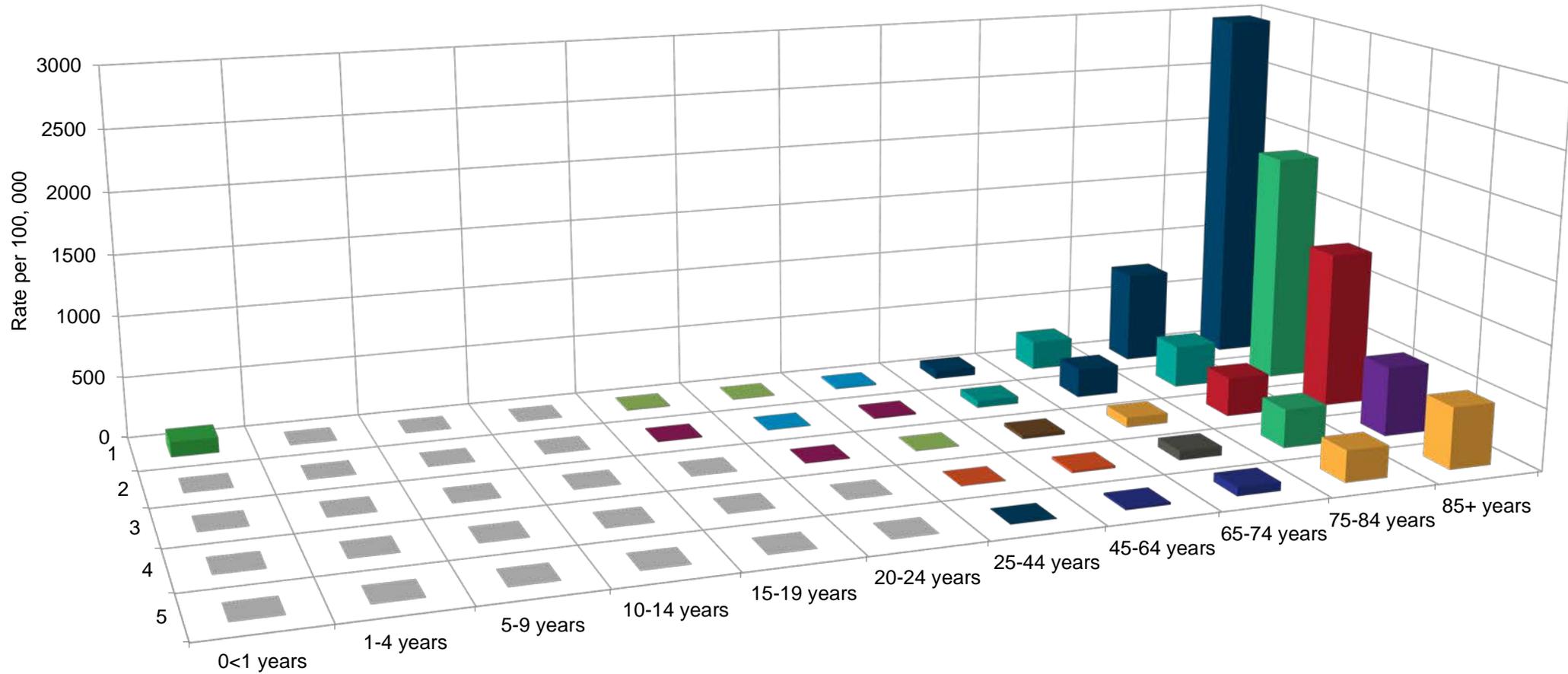
# Hospital Discharge Diagnoses

Niagara	1	2	3	4	5
0<1 years	Length of Gestation/Fetal Growth Problems	Perinatal Respiratory/ Cardiovascular Disorder	H & H Disorders of Fetus & Newborn	General Signs & Symptoms	Intestinal Infectious Diseases
1-4 years	Intestinal Infectious Diseases	Influenza & Pneumonia	Chronic Lower Respiratory Diseases	General Signs & Symptoms	Other Urinary System Diseases
5-9 years	Intestinal Infectious Diseases	Influenza & Pneumonia	Chronic Lower Respiratory Diseases	Diseases of Appendix	Digestive/Abdominal Signs & Symptoms
10-14 years	Mood (Affective) Disorders	Diseases of Appendix	Digestive/Abdominal Signs & Symptoms	Intestinal Infectious Diseases	Diabetes Mellitus
15-19 years	Labour & Delivery Complications	Mood (Affective) Disorders	Diseases of Appendix	Fetus & Delivery Problems	Diabetes Mellitus
20-24 years	Labour & Delivery Complications	Fetus & Delivery Problems	Diseases of Appendix	Knee & Lower Leg Injuries	Gall, Biliary Tract & Pancreatic Disorders
25-44 years	Labour & Delivery Complications	Fetus & Delivery Problems	Non-inflammatory Female Genital Tract Disorder	Gall, Biliary Tract & Pancreatic Disorders	Diseases of Appendix
45-64 years	Ischaemic Heart Diseases	Arthrosis	Other Forms of Heart Disease	Comp. of Surg.& Med. Care NEC	Other Intestinal Diseases
65-74 years	Arthrosis	Ischaemic Heart Diseases	Other Forms of Heart Disease	Chronic Lower Respiratory Diseases	Comp. of Surg.& Med. Care NEC
75-84 years	Other Forms of Heart Disease	Ischaemic Heart Diseases	Arthrosis	Chronic Lower Respiratory Diseases	Other Intestinal Diseases
85+ years	Other Forms of Heart Disease	Ischaemic Heart Diseases	Hip & Thigh Injuries	Chronic Lower Respiratory Diseases	Influenza & Pneumonia

# Mortality

Niagara	1	2	3	4	5
0<1 years	Congenital Malformation	Not Reportable**	Not Reportable**	Not Reportable**	Not Reportable**
1-4 years	Not Reportable**	Not Reportable**	Not Reportable**	Not Reportable**	Not Reportable**
5-9 years	Not Reportable**	Not Reportable**	Not Reportable**	Not Reportable**	Not Reportable**
10-14 years	Not Reportable**	Not Reportable**	Not Reportable**	Not Reportable**	Not Reportable**
15-19 years	Transport Accidents	Intentional Self-Harm	Not Reportable**	Not Reportable**	Not Reportable**
20-24 years	Transport Accidents	Accidental Poisoning	Intentional Self-Harm	Not Reportable**	Not Reportable**
25-44 years	Accidental Poisoning	Intentional Self-Harm	Transport Accidents	Breast Cancer	Ischaemic Heart Disease
45-64 years	Ischaemic Heart Disease	Lung & Bronchus Cancer	Liver Cirrhosis	Breast Cancer	Colon, Rectal & Anal Cancer
65-74 years	Lung & Bronchus Cancer	Ischaemic Heart Disease	Chronic Lower Respiratory Infection	Lymph, Blood & Related Cancer	Colon, Rectal & Anal Cancer
75-84 years	Ischaemic Heart Disease	Lung & Bronchus Cancer	Cerebrovascular Diseases	Dementia/Alzheimer's	Chronic Lower Respiratory Infection
85+ years	Ischaemic Heart Disease	Dementia/Alzheimer's	Cerebrovascular Diseases	Falls	Chronic Lower Respiratory Infection

# Mortality Rates



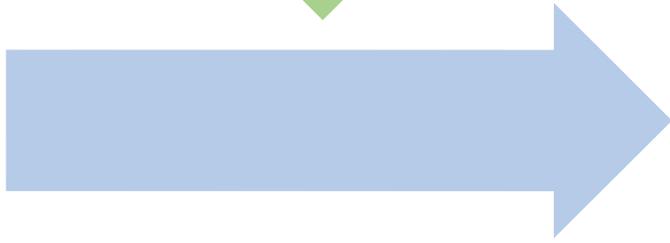
- Ischaemic heart disease
- Transport accidents
- Intentional self-harm
- Lung & bronchus cancer

- Chronic lower respiratory infection
- Accidental poisoning
- Breast cancer
- Colon, rectal & anal cancer

- Cerebrovascular diseases
- Dementia/Alzheimer's
- Falls
- Congenital malformation

- Liver cirrhosis
- Lymph, blood & related cancers
- Prostate cancer
- Diabetes mellitus







# Self-reported Behaviours

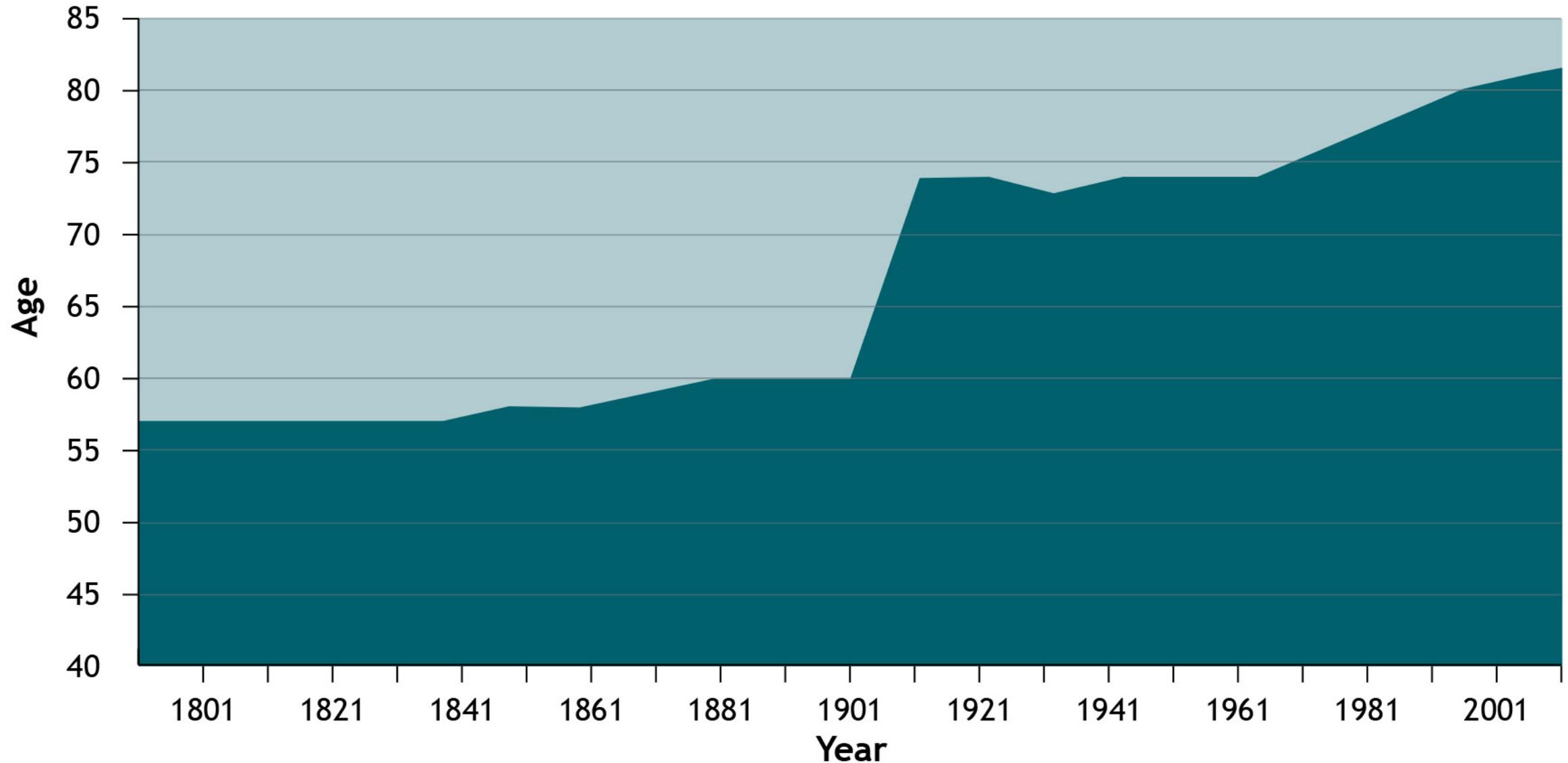
Niagara	1	2	3	4	5
12-19 years	4 or less fruits and vegetables	Inactive during leisure time	Underage drinking	Illicit drug use	Cannabis use
19-44 years	Exceeds LRADG	4 or less fruits and vegetables	Inactive during leisure time	Current smokers	Illicit drug use
45-64 years	4 or less fruits and vegetables	Exceeds LRADG	Inactive during leisure time	Current smokers	Illicit drug use
65+ years	Inactive during leisure time	4 or less fruits and vegetables	Exceeds LRADG	Current smokers	<i>Not Reportable**</i>

# Social Determinants of Health

Determine 50% of Health Outcomes

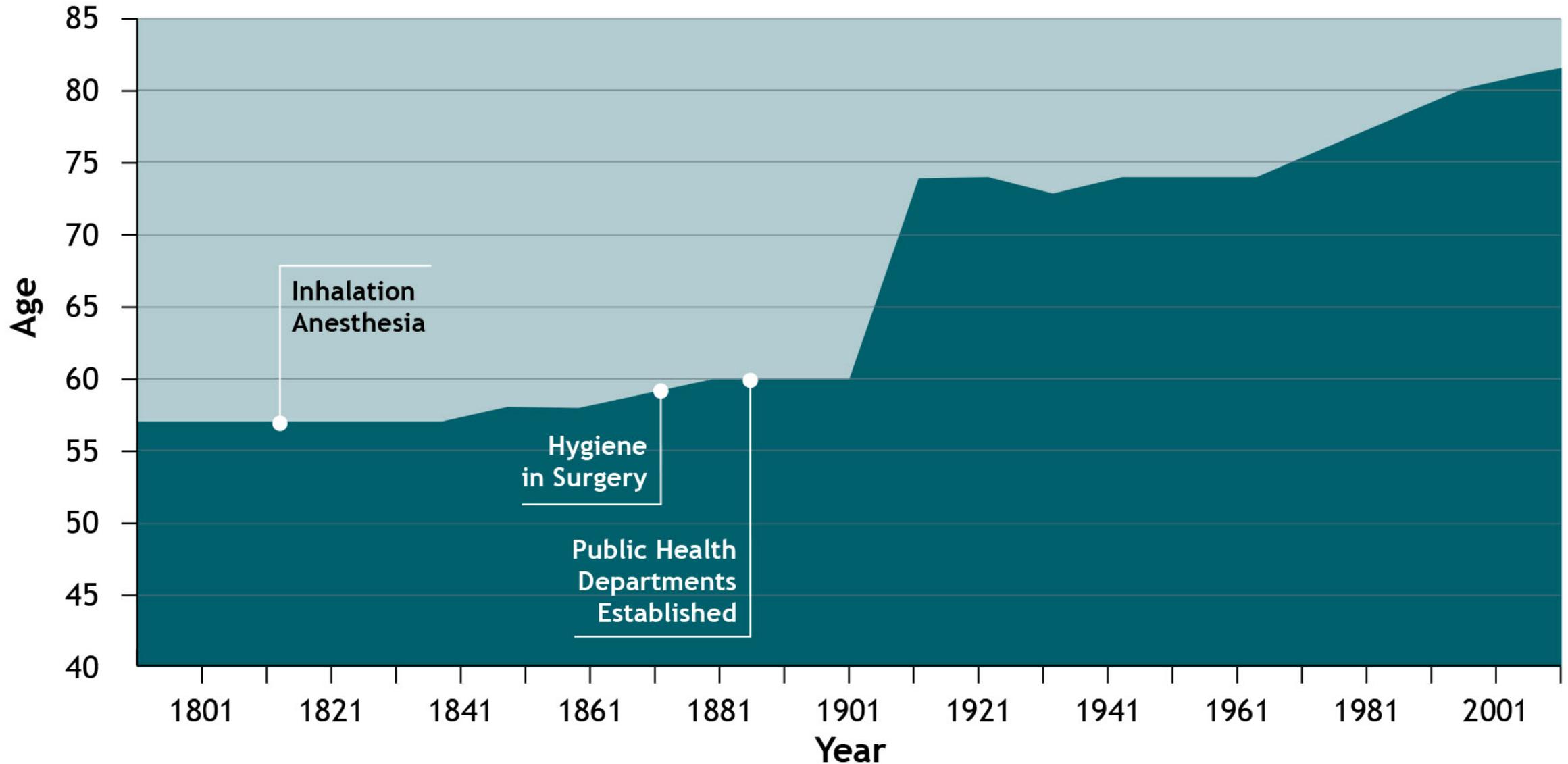


# Average Expected Age at Death in Ontario for a 50 Year Old



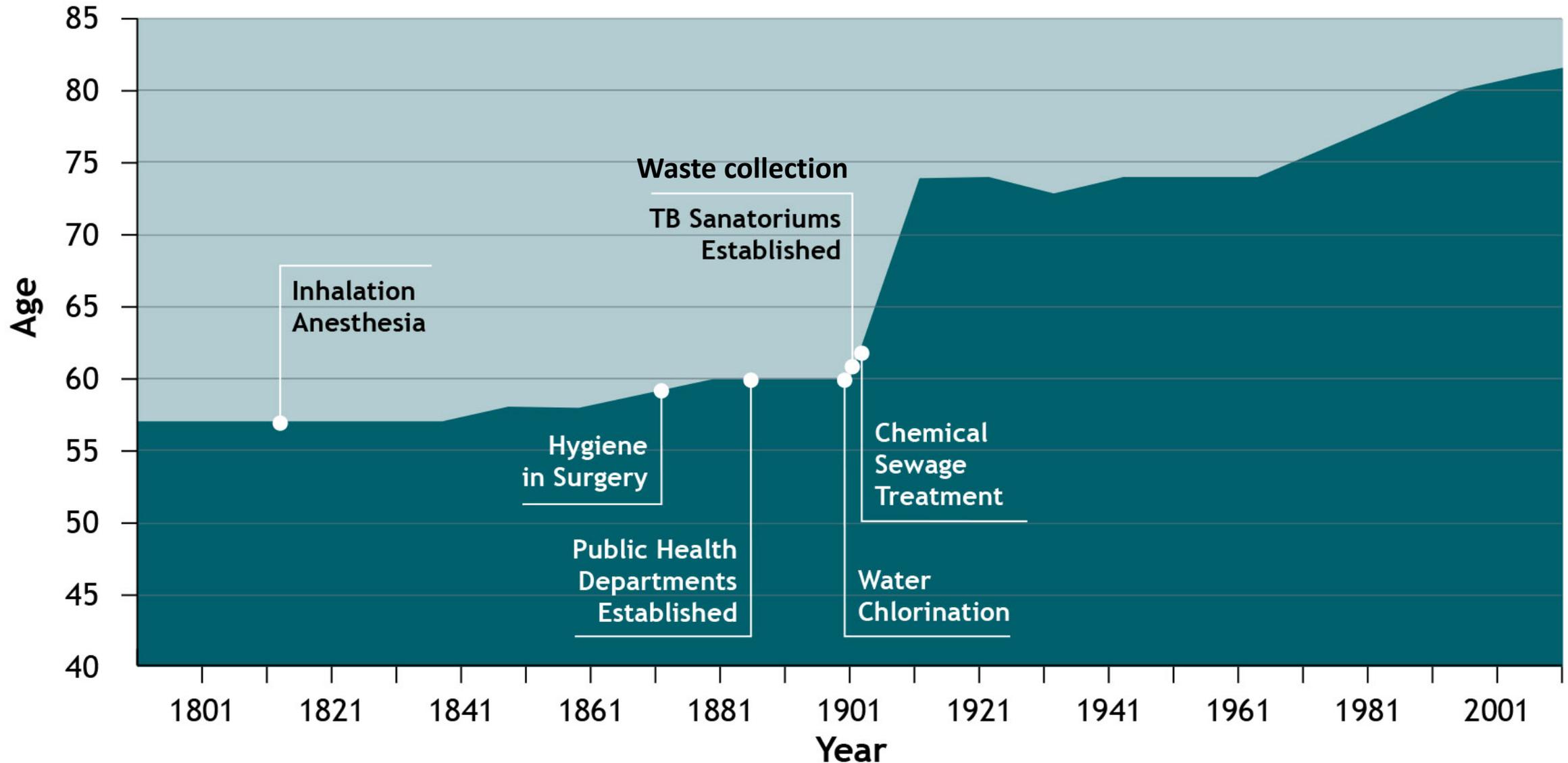
LifeInsuranceCanada.com Inc. <https://www.lifeinsurancecanada.com/life-expectancy-calculator/>

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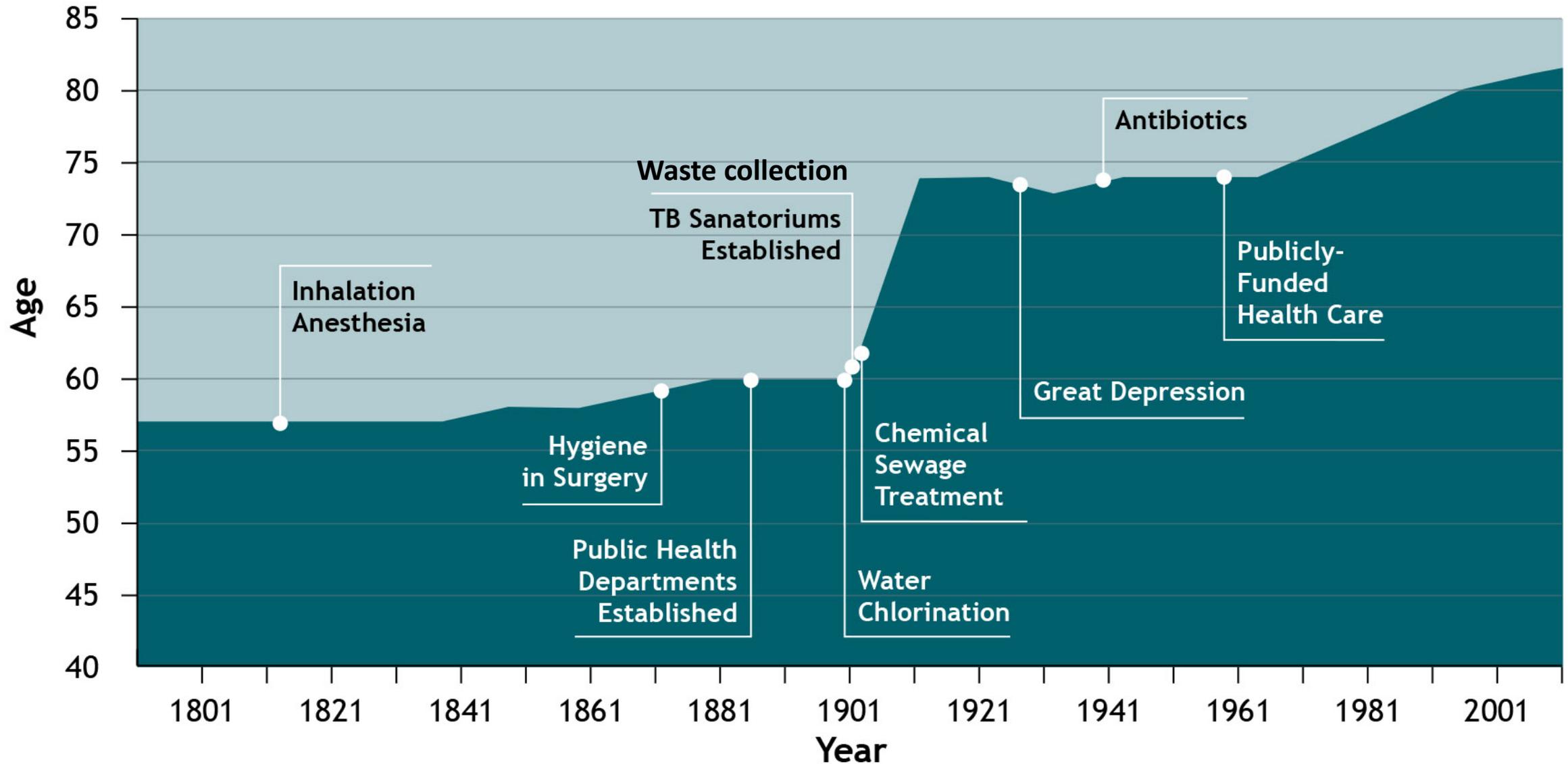
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# Average Expected Age at Death in Ontario for a 50 Year Old



LifeInsuranceCanada.com Inc. <https://www.lifeinsurancecanada.com/life-expectancy-calculator/>

Public health - Wikipedia Sanitation rated the greatest medic... Achievements in Public Health, 1...

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# Sanitation rated the greatest medical advance in 150 years

f t e ... 21

**Sarah Boseley**, health editor  
Friday 19 January 2007 09:19 GMT

**Sanitation** is the greatest medical milestone of the last century and a half, according to a poll carried out by the British Medical Journal.

Sanitation was the clear winner among 15 milestones shortlisted by readers of the journal, including the development of vaccines, which has safeguarded many children's lives, and the invention of the contraceptive pill, which was a contributory factor to significant social change.

The winner was chosen by more than 11,000 members of the public around the world, who were invited to read articles championing each of the 15 contenders by prominent scientists, either in the journal or on the BMJ website. The competition was to mark the relaunch of the BMJ and all the innovations had to have taken place since it was first published in 1840.

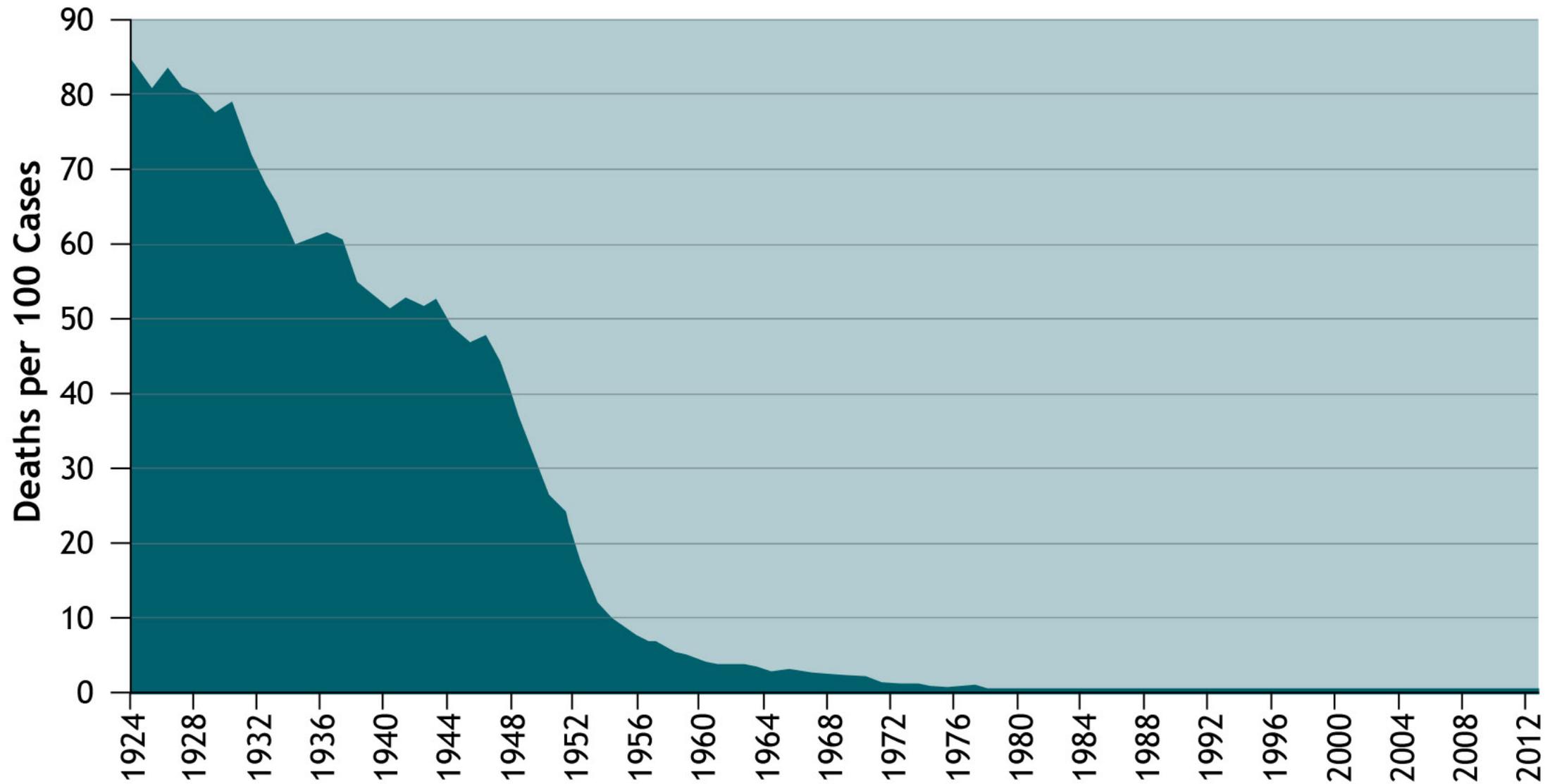


Sanitation was the undisputed winner, with 1,795 votes, over antibiotics in second place with 1,642 votes, and anaesthesia which took third place with 1,574.

Johan Mackenbach of Erasmus University Medical Centre in Rotterdam, who championed sanitation, said: "I'm delighted that sanitation is recognised

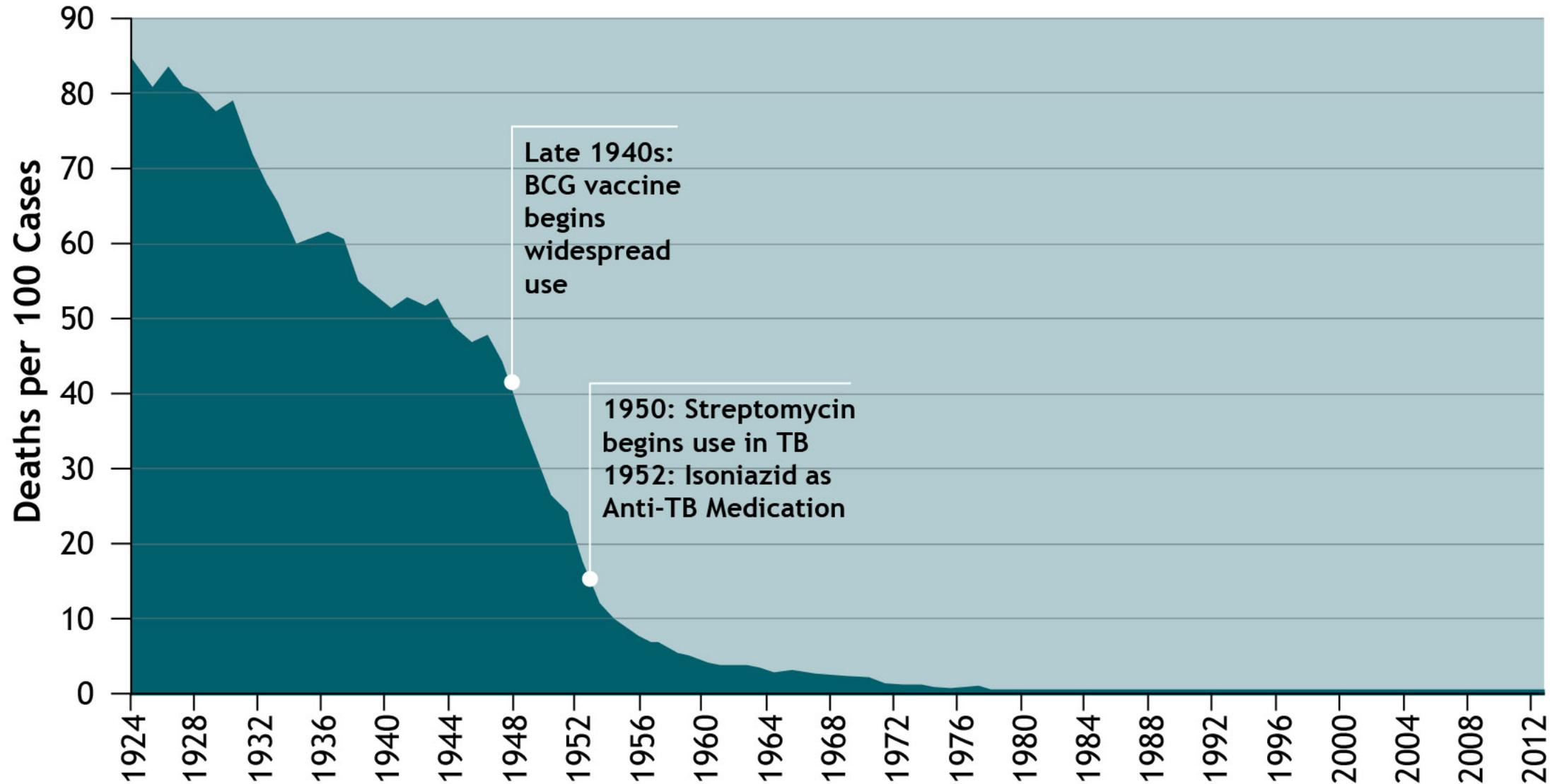
Guardian Today: the

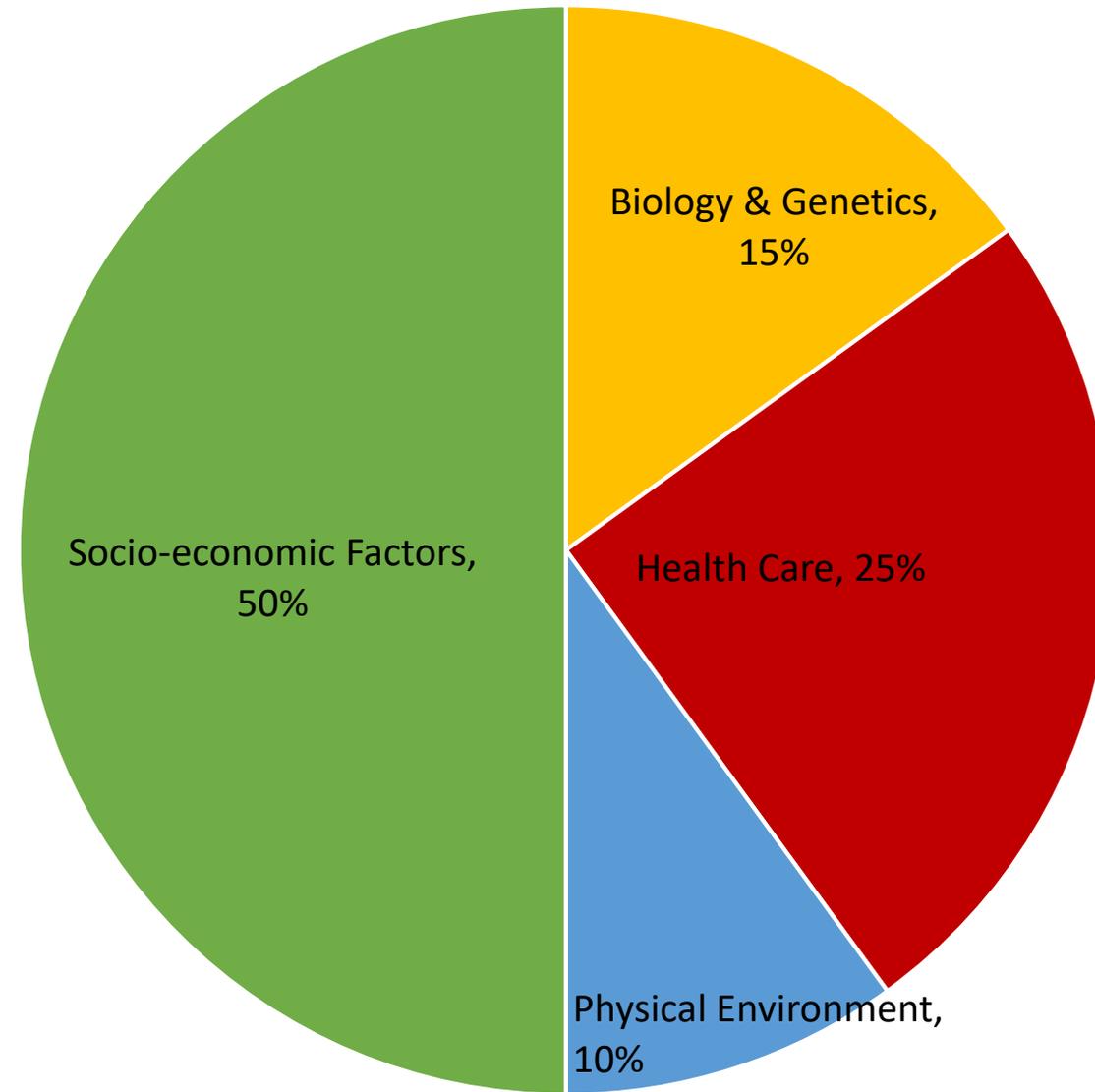
# Fatality Rate from TB



CCDR: Volume 40-6, March 20, 2014 <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/14vol40/dr-rm40-06/assets/longdesc/dr-rm40-06-ld-eng.php#fig1>

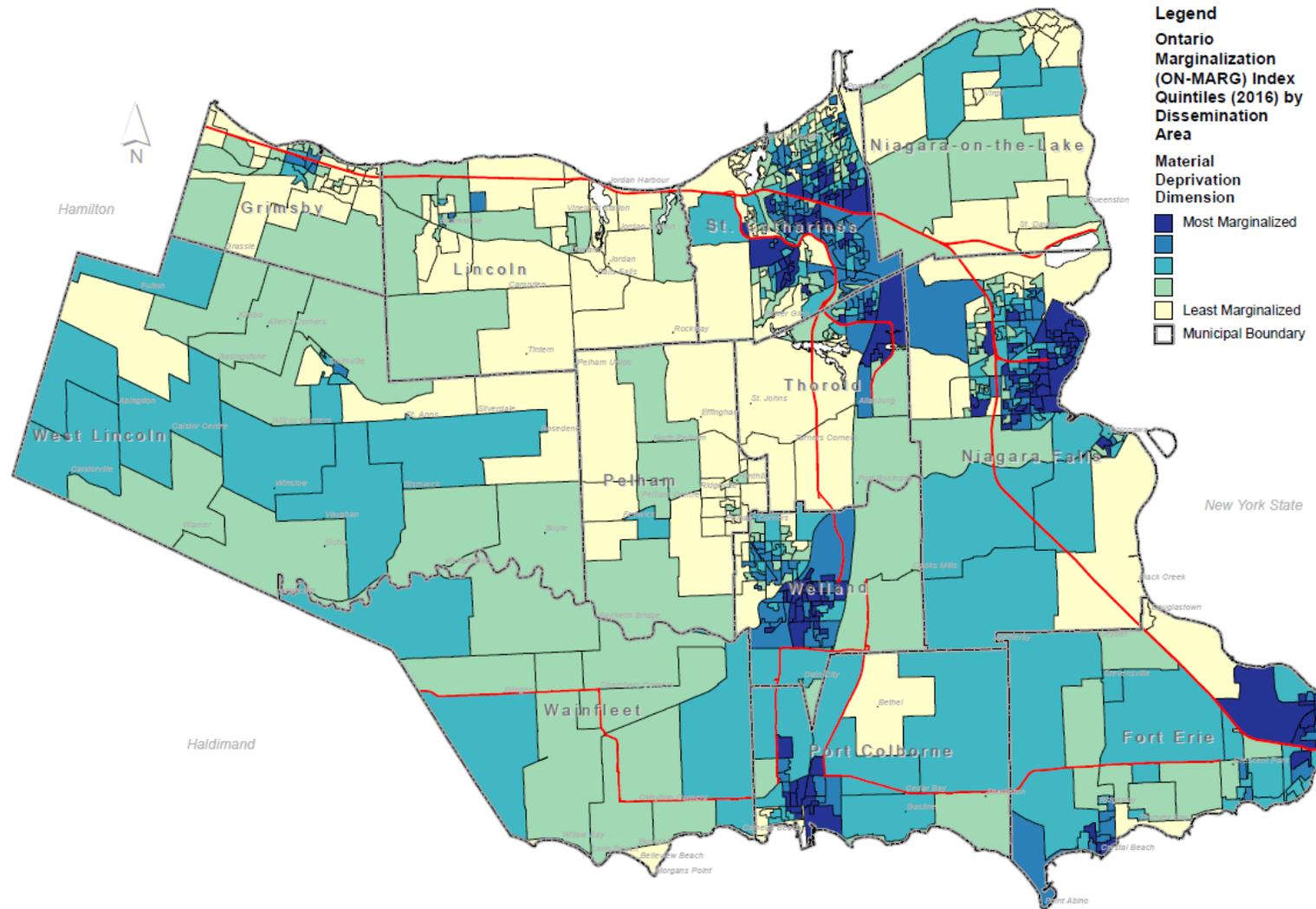
# Fatality Rate from TB





Keon & Pepin. A Healthy, Productive Canada: A Determinant of Health Approach.  
The Standing Senate Committee on Social Affairs, Science and Technology Final Report of Senate Subcommittee on Population Health. June 2009.

# 2016 ON-Marg Material Deprivation



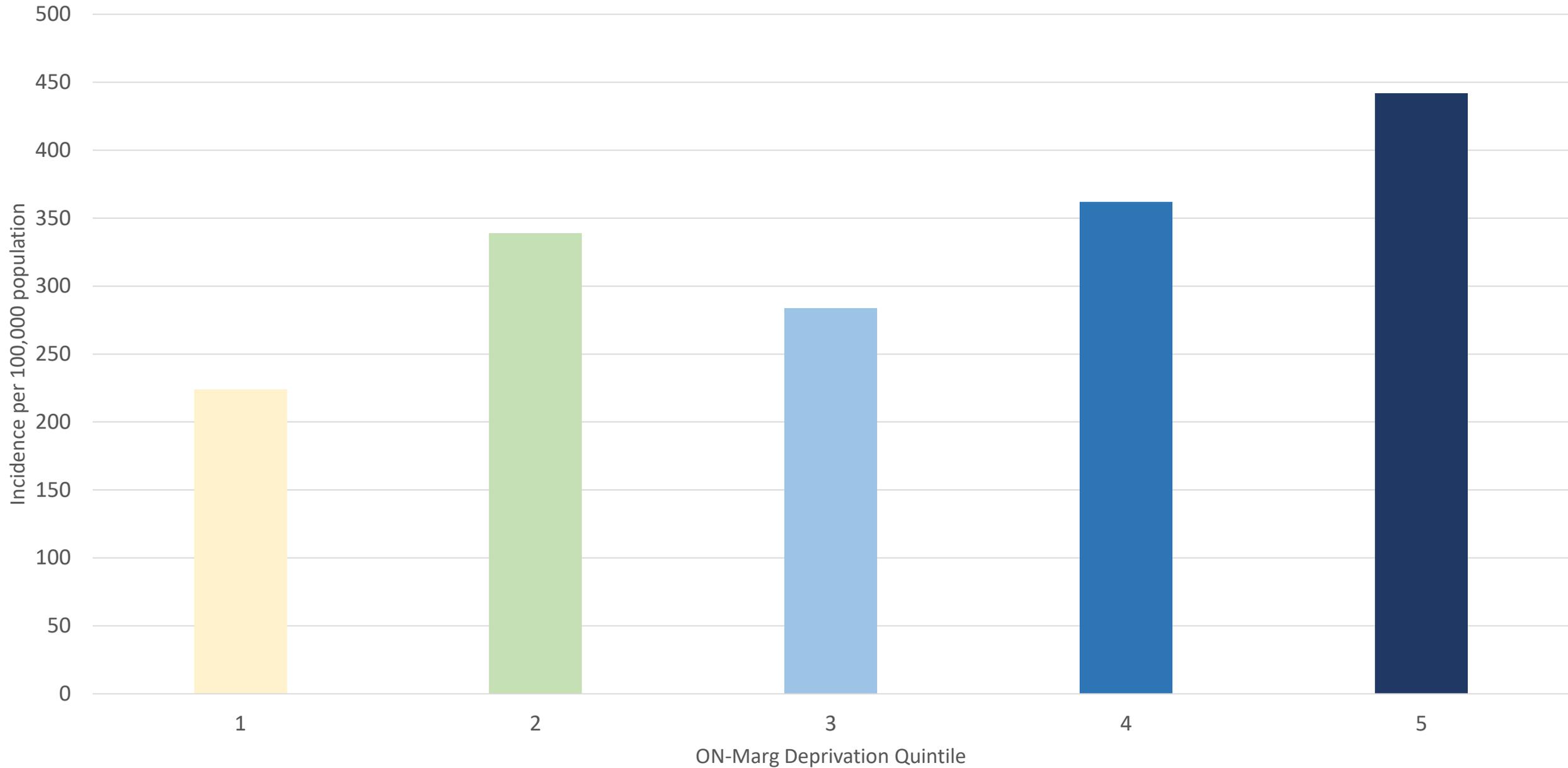
Data Source: Matheson, FC Ontario Agency for Health Protection and Promotion (Public Health Ontario). 2016 Ontario marginalization index: user guide Toronto, ON: Providence St. Joseph's and St. Michael's Healthcare, 2016. Joint publication with Public Health Ontario.

# Putting It Together #2

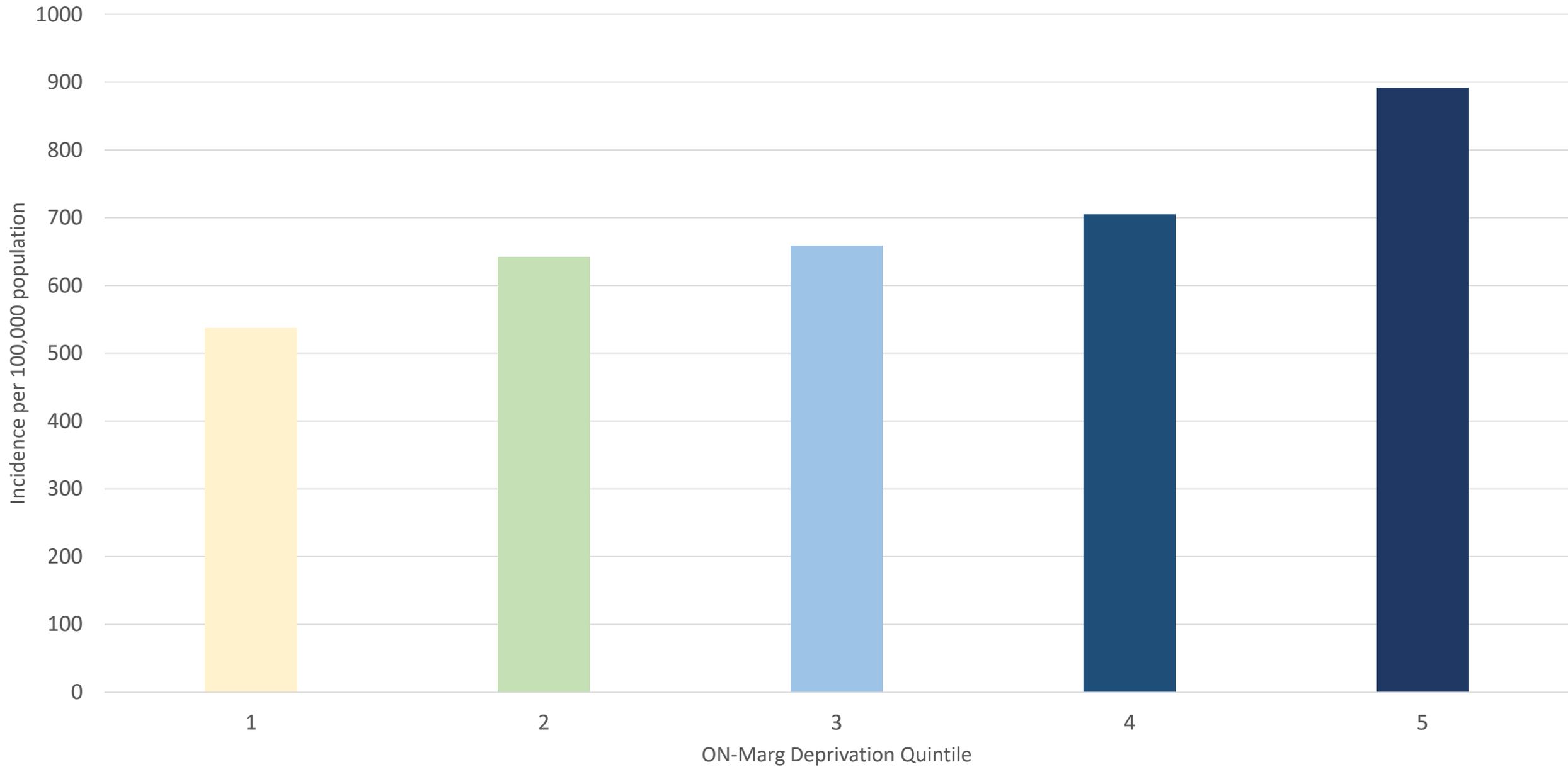
Top Health Issues Across the Social Determinant of Health Gradient



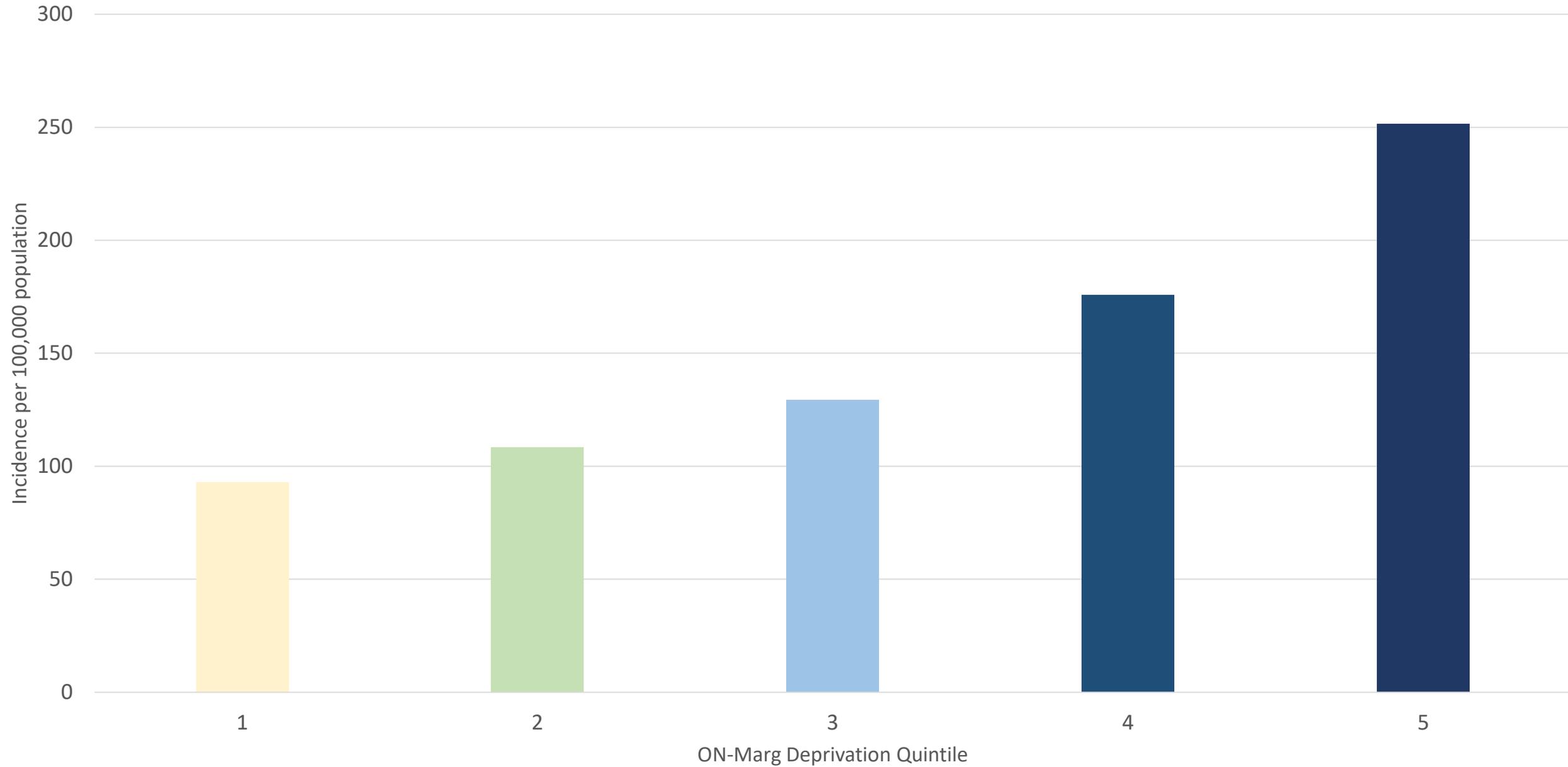
# Chlamydia Infections in Niagara by Material Deprivation in 2017



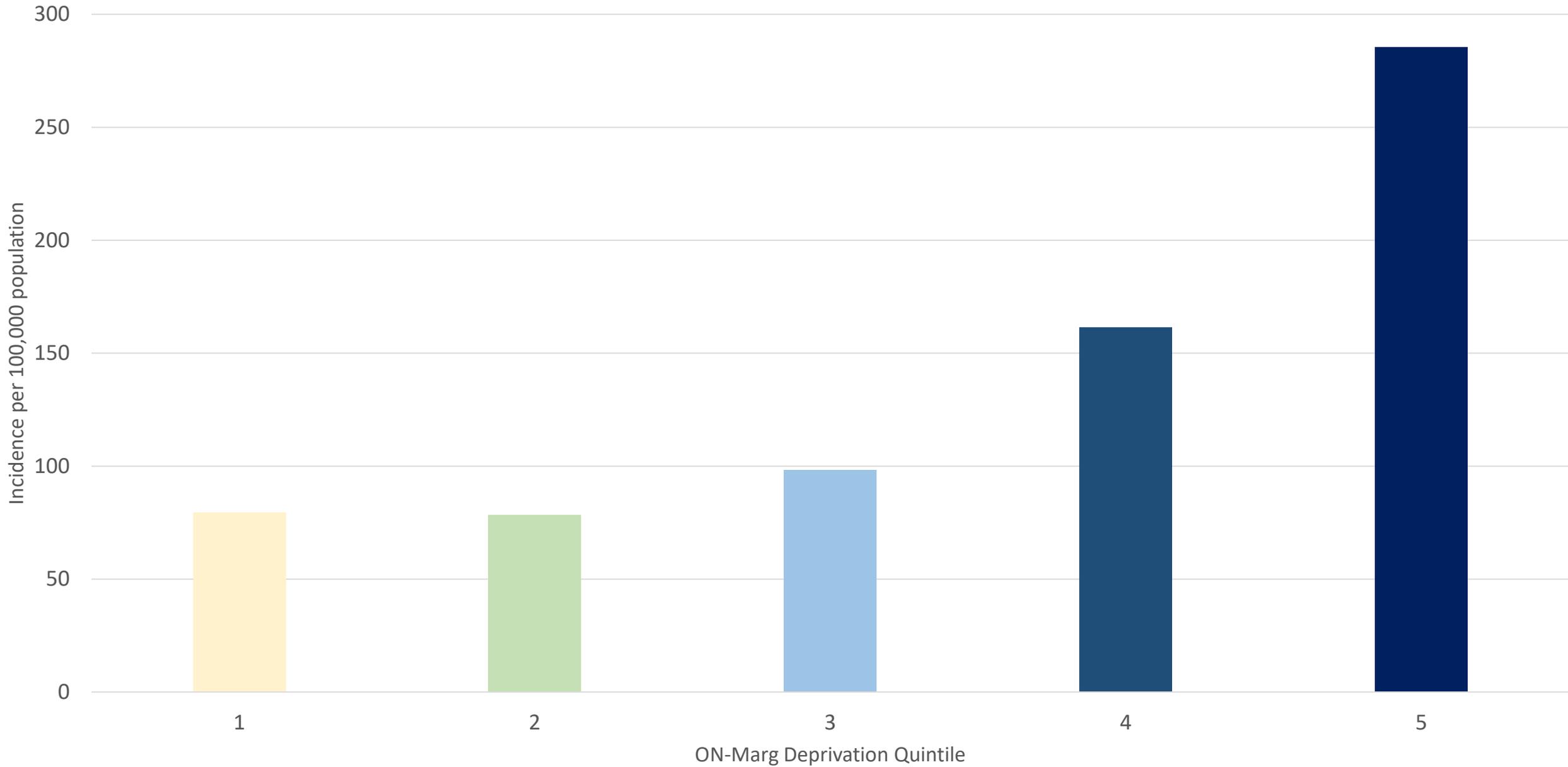
# Motor Vehicle Collision ED Visits in Niagara by Material Deprivation in 2017



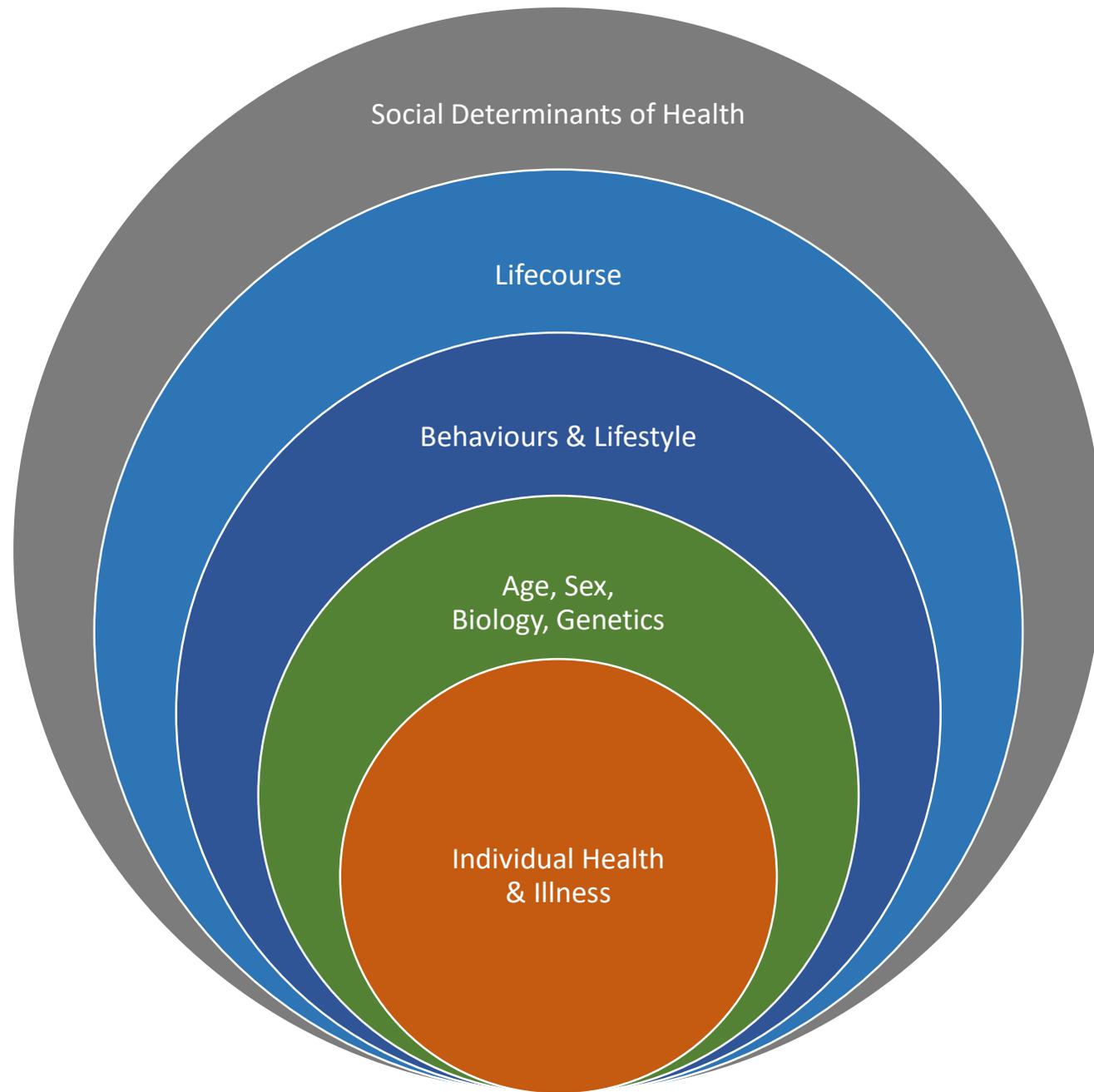
# Self-Harm ED Visits in Niagara by Material Deprivation in 2017



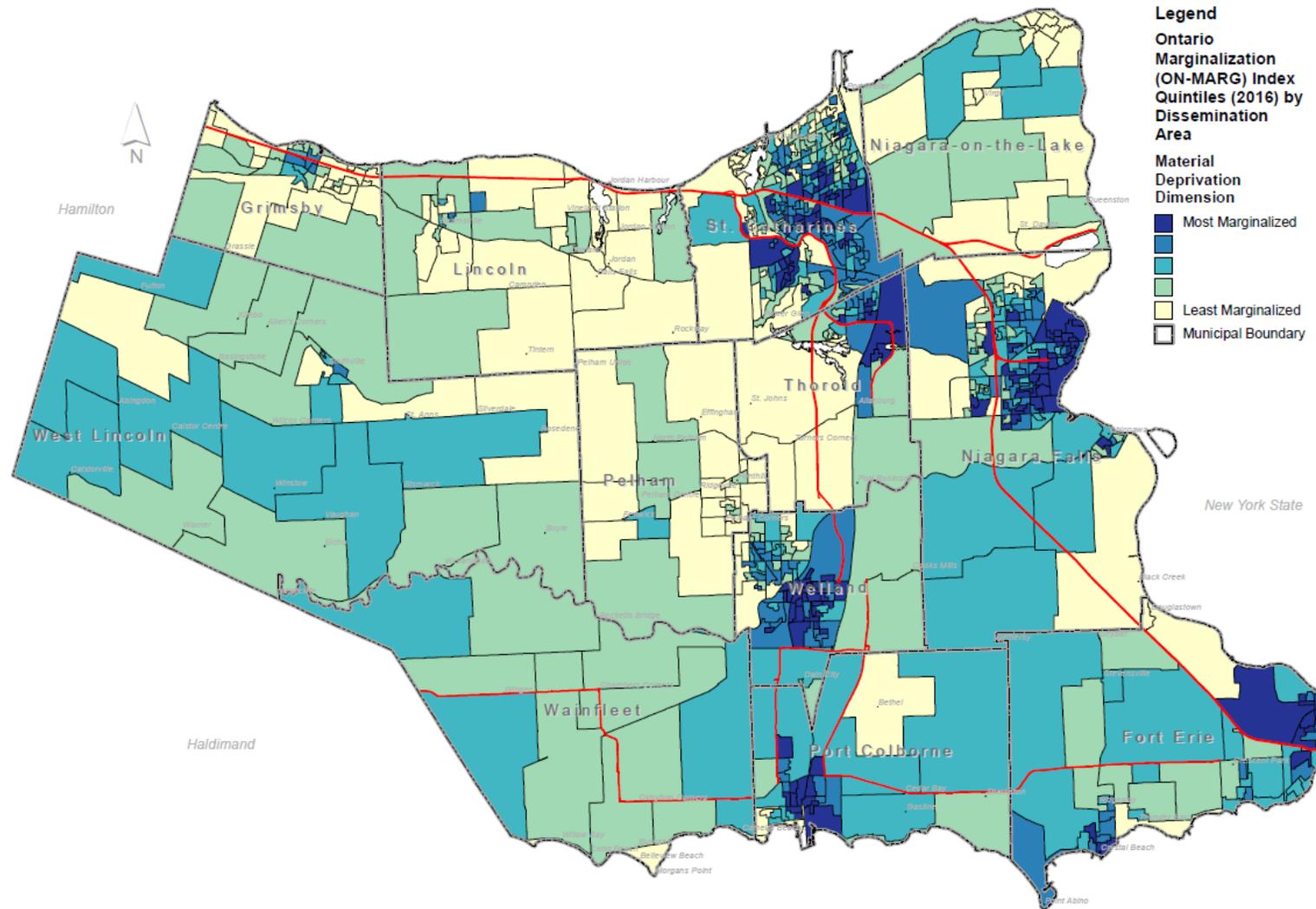
# Diabetes Hospitalizations in Niagara by Material Deprivation in 2017







# 2016 ON-Marg Material Deprivation



Data Source: Matheson, FC Ontario Agency for Health Protection and Promotion (Public Health Ontario).  
2016 Ontario marginalization index: user guide Toronto, ON; Providence St. Joseph's  
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Questions?