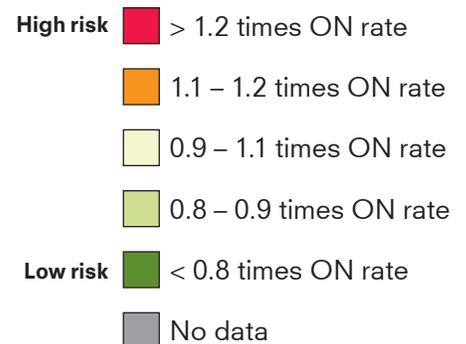## INTRODUCTION
TO THE SOCIAL DETERMINANTS OF HEALTH

The social determinants of health are a group of non-biological factors that influence one's health. They are a major cause of health inequity within a population, making some groups of people healthier than others. The Ontario Public Health Standards list a set of determinants which include: income, education, and employment, among others. Addressing these determinants and their effects on health is a key role of public health units in Ontario. This is an important step in improving the health of not only the most vulnerable people, but of the entire local population.

The social determinants of health are:

- Income and social status
- Education and literacy
- Employment and working conditions
- Social support networks
- Personal health practices and coping skills
- Healthy childhood developments
- Health services
- Physical environment
- Social environment
- Culture
- Gender

This report illustrates the state of these determinants in Hastings and Prince Edward Counties (HPE), with brief explanations of how they may affect one's health. The information contained in this report is intended to inform the community about the state of social determinants in Hastings and Prince Edward Counties, in the hopes that the health inequities that currently exist can be mitigated through partnerships and collaboration.
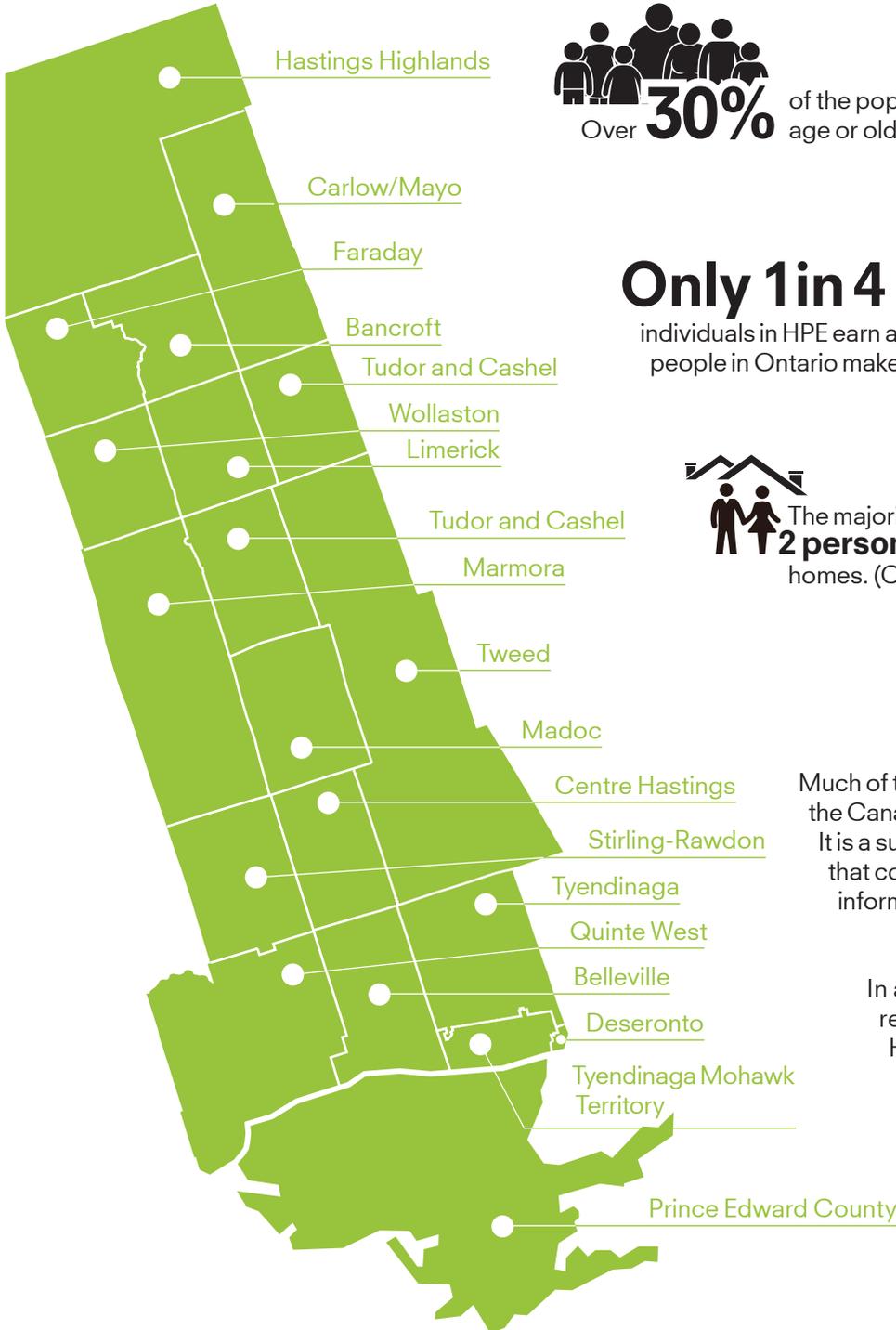
In this report, maps are used to illustrate how regions within HPE compare to provincial averages for various social determinants of health. This is displayed by dividing the municipal rate by the provincial rate, otherwise known as a rate ratio. For example, a value of 1.4 indicates that the municipal rate is 1.4 times that of Ontario, making it much higher. A value of 0.75 means that the municipal rate is 0.75 times that of Ontario, making it much lower. Values close to 1 mean that the municipal rate and that of Ontario are similar. Maps are coloured based on these rates to give an overview of how the different municipalities fare for each determinant, per the legend.

High risk
- > 1.2 times ON rate
- 1.1 – 1.2 times ON rate
- 0.9 – 1.1 times ON rate
- 0.8 – 0.9 times ON rate

Low risk
- < 0.8 times ON rate
- No data

HASTINGS PRINCE EDWARD
Public Health

A DEMOGRAPHIC PROFILE

The Hastings and Prince Edward Counties public health region[1]:

- is an urban rural mix
- has a higher proportion of Indigenous people
- has a lower proportion of males
- has had slow population growth

Hastings Highlands

Carlow/Mayo

Faraday

Bancroft

Tudor and Cashel

Wollaston

Limerick

Tudor and Cashel

Marmora

Tweed

Madoc

Centre Hastings

Stirling-Rawdon

Tyendinaga

Quinte West

Belleville

Deseronto

Tyendinaga Mohawk Territory

Prince Edward County

Over **30%** of the population in HPE is 60 years of age or older. (Census 2016)

Only 1 in 4 individuals in HPE earn above $40,000 annually, while 1 in 3 people in Ontario make above the same threshold. (NHS 2011)

The majority of the population in HPE live in **2 person** households, and in single-detached homes. (Census 2016)

Much of the data in this report comes from the Canadian Community Health Survey (CCHS). It is a survey administered by Statistics Canada that collects detailed, self-reported health information.

In addition to the CCHS, data in this report also comes from the National Household Survey (NHS). The NHS replaced the Canadian long-form census in 2011. Due to its voluntary nature, Tyendinaga Township, Marmora, Wollaston and Deseronto had large non-response rates, making the results non-reportable.
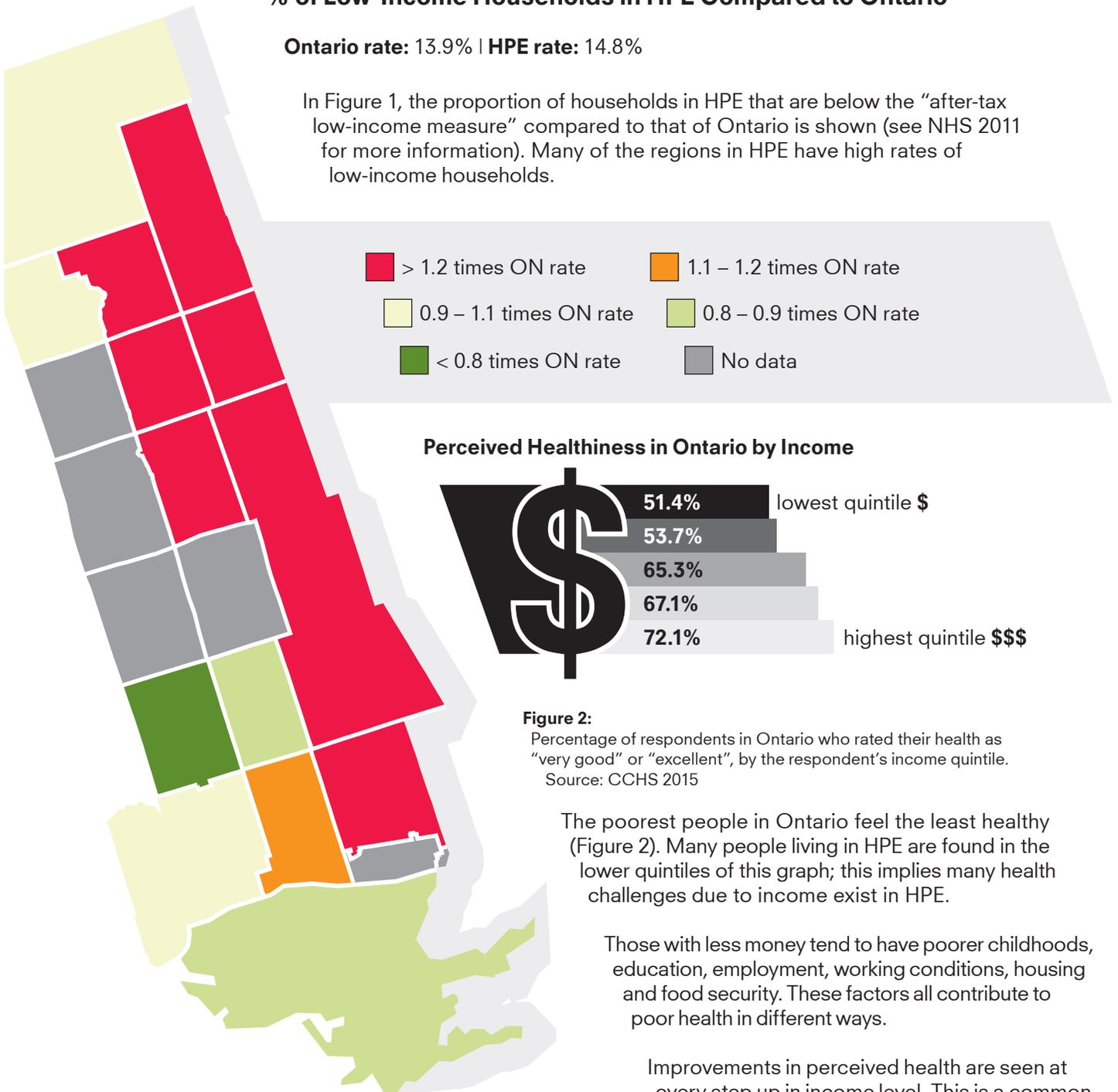
INCOME AND SOCIAL STATUS

Public perceptions about the social determinants of health in two Ontario public health units show that income is not considered to be an important determinant of health[2,3] However, there is overwhelming evidence that income and social status are key determinants of how healthy a person will be.[4,5] How income and social status affect health is complex and implicates many other determinants of health.
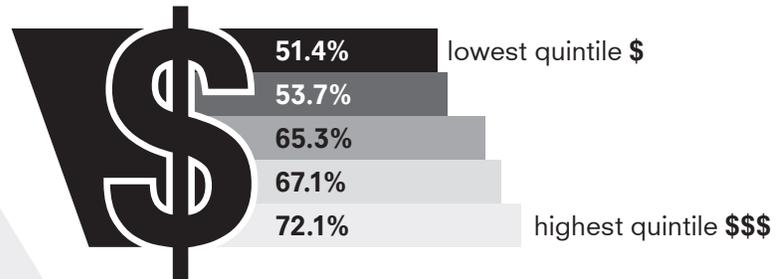
% of Low-Income Households in HPE Compared to Ontario

Ontario rate: 13.9% | **HPE rate:** 14.8%

In Figure 1, the proportion of households in HPE that are below the "after-tax low-income measure" compared to that of Ontario is shown (see NHS 2011 for more information). Many of the regions in HPE have high rates of low-income households.

Legend:
- > 1.2 times ON rate
- 1.1 – 1.2 times ON rate
- 0.9 – 1.1 times ON rate
- 0.8 – 0.9 times ON rate
- < 0.8 times ON rate
- No data

Perceived Healthiness in Ontario by Income

- 51.4% — lowest quintile $
- 53.7%
- 65.3%
- 67.1%
- 72.1% — highest quintile $$$

Figure 2:
Percentage of respondents in Ontario who rated their health as "very good" or "excellent", by the respondent's income quintile. Source: CCHS 2015

The poorest people in Ontario feel the least healthy (Figure 2). Many people living in HPE are found in the lower quintiles of this graph; this implies many health challenges due to income exist in HPE.

Those with less money tend to have poorer childhoods, education, employment, working conditions, housing and food security. These factors all contribute to poor health in different ways.

Improvements in perceived health are seen at every step up in income level. This is a common feature in health equity studies, and is called a **health gradient**.

Figure 1:
Proportion of residents in HPE that are below the after-tax low-income measure, compared to Ontario. Source: NHS 2011
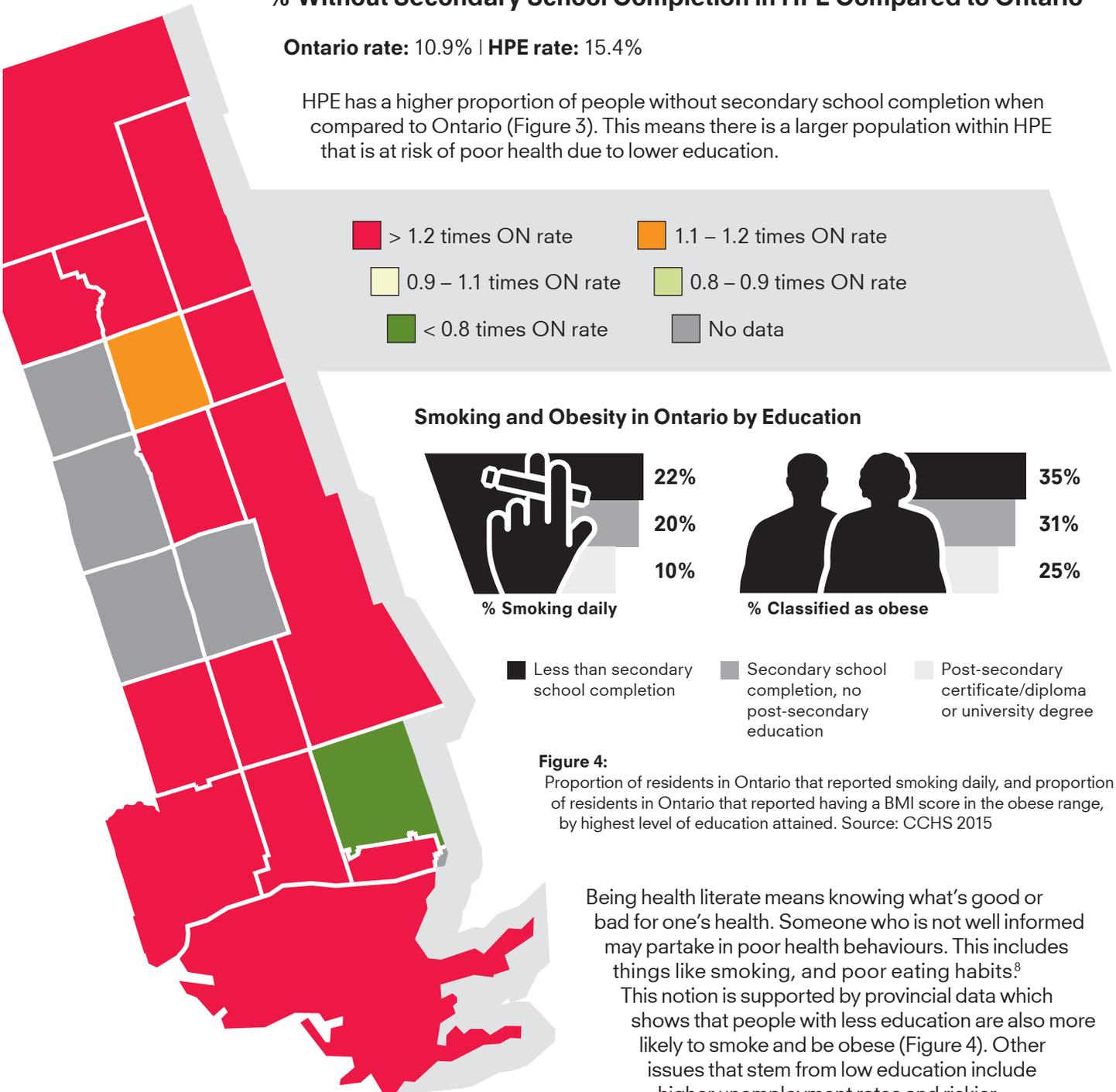
📖 EDUCATION AND LITERACY

Lower levels of education are associated with poorer health.[4] There are many ways that differences in education may lead to differences in health; for example, higher education may lead to higher income and better health literacy.[6] It can also work in reverse; poor health may lead to lower education. This can make it hard for one to better their health, as they may lack opportunities to increase their income or health literacy.[7]

% Without Secondary School Completion in HPE Compared to Ontario

Ontario rate: 10.9% | **HPE rate:** 15.4%

HPE has a higher proportion of people without secondary school completion when compared to Ontario (Figure 3). This means there is a larger population within HPE that is at risk of poor health due to lower education.

> 1.2 times ON rate

1.1 – 1.2 times ON rate

0.9 – 1.1 times ON rate

0.8 – 0.9 times ON rate

< 0.8 times ON rate

No data

Smoking and Obesity in Ontario by Education

% Smoking daily

22%
20%
10%

% Classified as obese

35%
31%
25%

Less than secondary school completion

Secondary school completion, no post-secondary education

Post-secondary certificate/diploma or university degree

Figure 4:
Proportion of residents in Ontario that reported smoking daily, and proportion of residents in Ontario that reported having a BMI score in the obese range, by highest level of education attained. Source: CCHS 2015

Figure 3:
Proportion of residents in HPE aged 25-64 years without secondary school completion compared to the Ontario rate. Source: NHS 2011

Being health literate means knowing what's good or bad for one's health. Someone who is not well informed may partake in poor health behaviours. This includes things like smoking, and poor eating habits[8] This notion is supported by provincial data which shows that people with less education are also more likely to smoke and be obese (Figure 4). Other issues that stem from low education include higher unemployment rates and riskier employment such as being a truck driver or construction worker.[9]
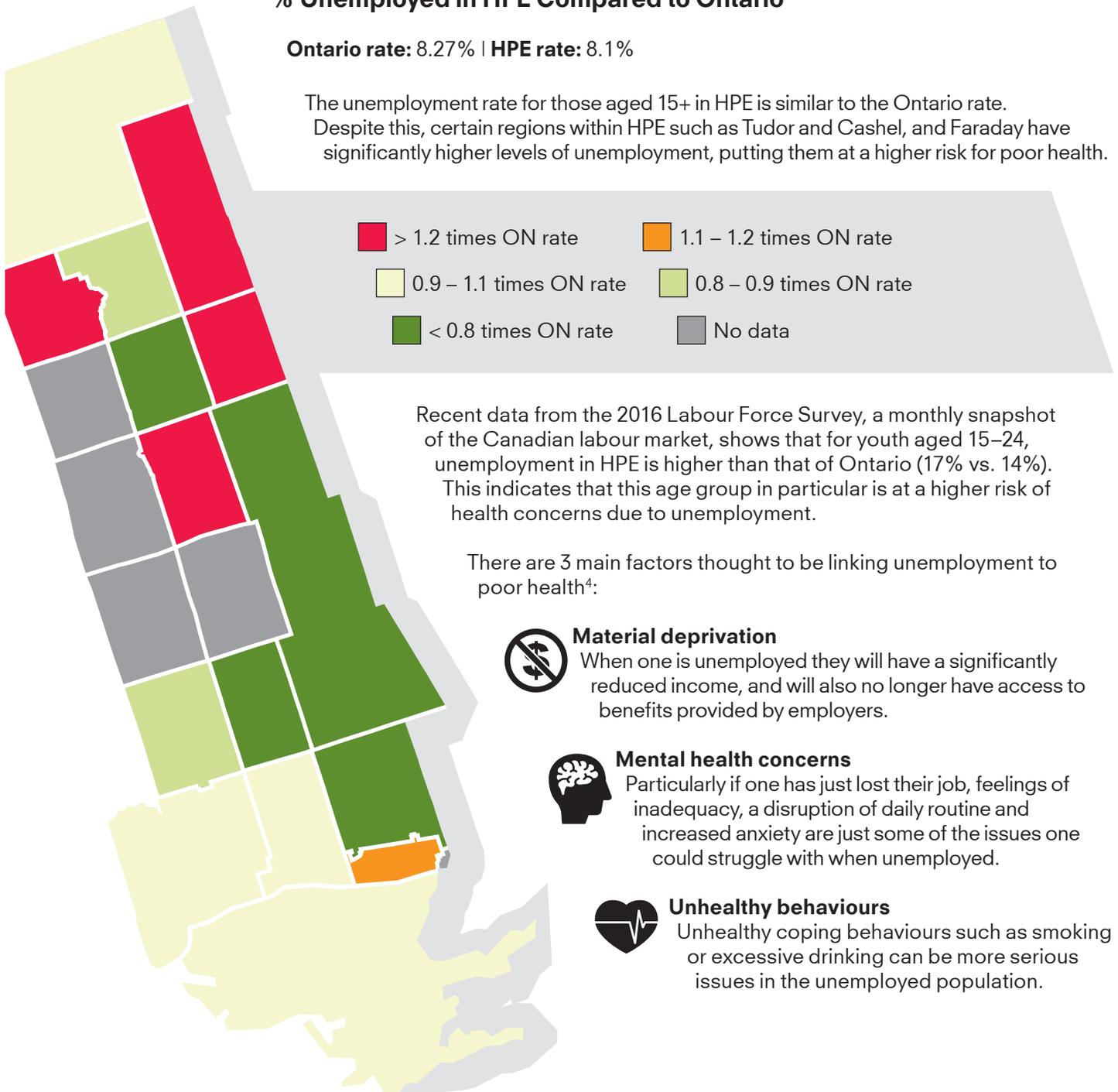
EMPLOYMENT AND WORKING CONDITIONS

Being unemployed, underemployed, or working in stressful/unsafe environments can lead to poorer health. Employment provides a sense of identity and purpose; it also provides opportunities for growth and social activity. Unemployed people have reduced life expectancy and suffer more health problems than employed people.[4,8] Full-time employment also usually includes benefits that will allow individuals to seek and obtain services that will enhance their health, such as dental coverage and paid time off work to seek treatments.

% Unemployed in HPE Compared to Ontario

Ontario rate: 8.27% | **HPE rate:** 8.1%

The unemployment rate for those aged 15+ in HPE is similar to the Ontario rate. Despite this, certain regions within HPE such as Tudor and Cashel, and Faraday have significantly higher levels of unemployment, putting them at a higher risk for poor health.

- 🟥 > 1.2 times ON rate
- 🟧 1.1 – 1.2 times ON rate
- ⬜ 0.9 – 1.1 times ON rate
- 🟩 0.8 – 0.9 times ON rate
- 🟢 < 0.8 times ON rate
- ⬛ No data

Recent data from the 2016 Labour Force Survey, a monthly snapshot of the Canadian labour market, shows that for youth aged 15–24, unemployment in HPE is higher than that of Ontario (17% vs. 14%). This indicates that this age group in particular is at a higher risk of health concerns due to unemployment.

There are 3 main factors thought to be linking unemployment to poor health[4]:

Material deprivation
When one is unemployed they will have a significantly reduced income, and will also no longer have access to benefits provided by employers.

Mental health concerns
Particularly if one has just lost their job, feelings of inadequacy, a disruption of daily routine and increased anxiety are just some of the issues one could struggle with when unemployed.

Unhealthy behaviours
Unhealthy coping behaviours such as smoking or excessive drinking can be more serious issues in the unemployed population.

Figure 5:
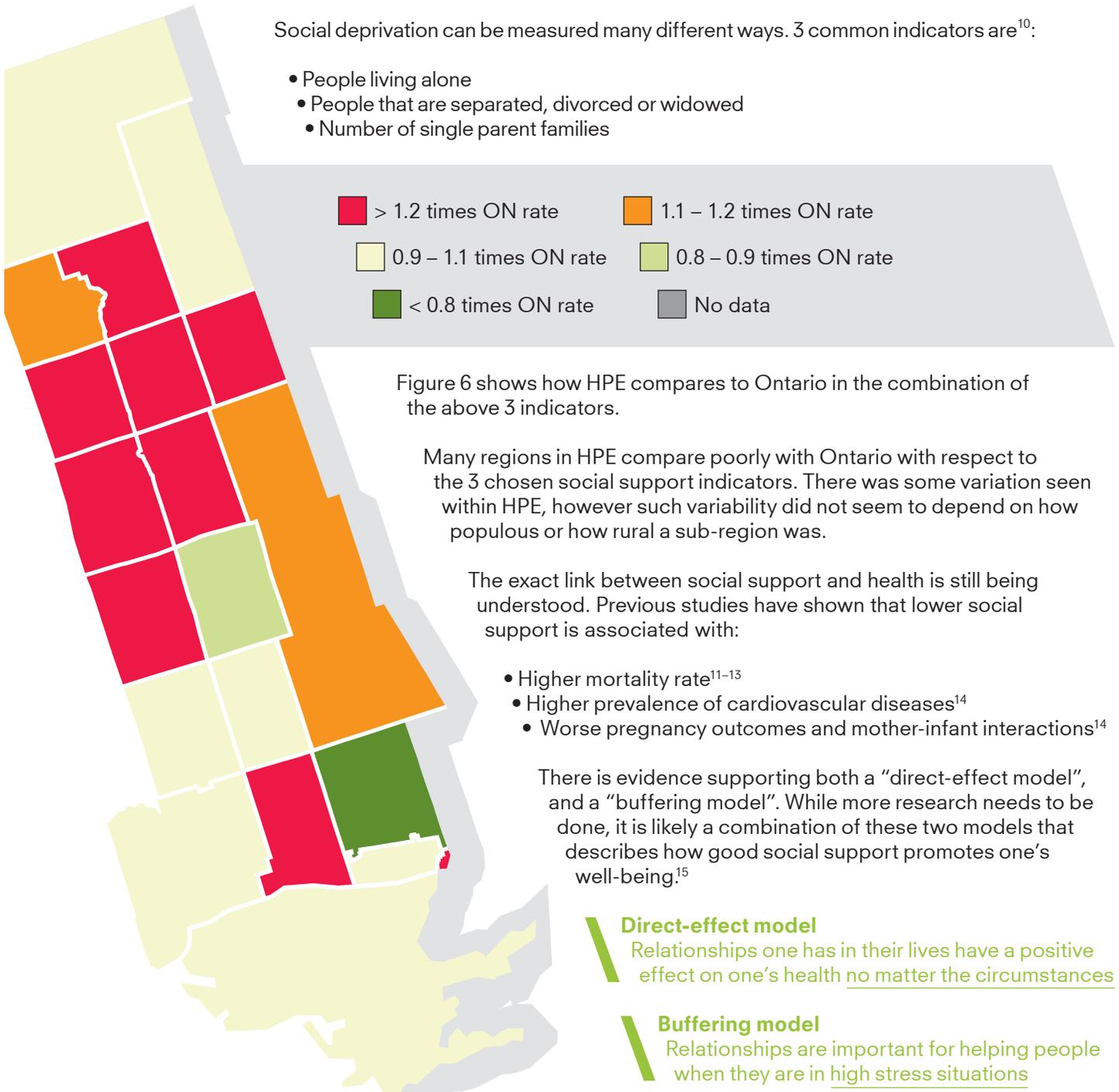Unemployment rates of residents aged 15+ in HPE compared to the unemployment rate of Ontario. Source: NHS 2011

SOCIAL SUPPORT NETWORKS

Having people to rely on and provide comfort when one is going through hard times is important to mental and physical health. The social support network determinant of health has to do with personal relationships one has with close friends and family. These contacts may provide a boost to health especially when one is in stressful situations or facing major life changes.

Social Deprivation in HPE Compared to Ontario

Social deprivation can be measured many different ways. 3 common indicators are[10]:

- People living alone
- People that are separated, divorced or widowed
- Number of single parent families

Legend:
- > 1.2 times ON rate
- 1.1 – 1.2 times ON rate
- 0.9 – 1.1 times ON rate
- 0.8 – 0.9 times ON rate
- < 0.8 times ON rate
- No data

Figure 6 shows how HPE compares to Ontario in the combination of the above 3 indicators.

Many regions in HPE compare poorly with Ontario with respect to the 3 chosen social support indicators. There was some variation seen within HPE, however such variability did not seem to depend on how populous or how rural a sub-region was.

The exact link between social support and health is still being understood. Previous studies have shown that lower social support is associated with:

- Higher mortality rate[11–13]
- Higher prevalence of cardiovascular diseases[14]
- Worse pregnancy outcomes and mother-infant interactions[14]

There is evidence supporting both a "direct-effect model", and a "buffering model". While more research needs to be done, it is likely a combination of these two models that describes how good social support promotes one's well-being.[15]

Direct-effect model
Relationships one has in their lives have a positive effect on one's health no matter the circumstances

Buffering model
Relationships are important for helping people when they are in high stress situations
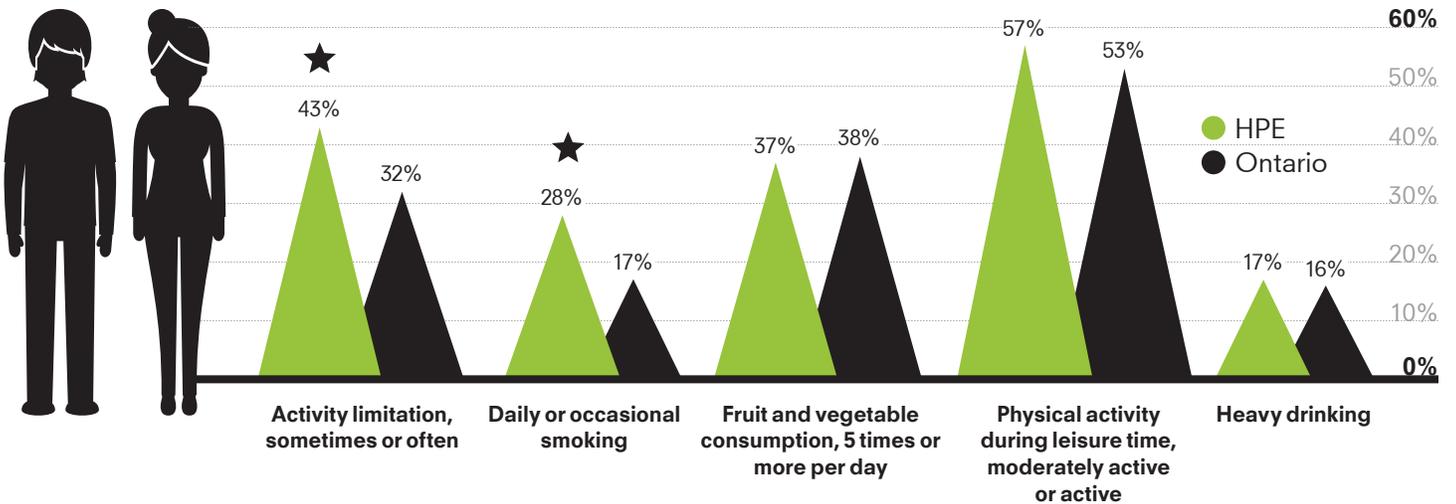
Figure 6:
Average of 3 social deprivation indicators of residents in HPE compared to Ontario. The 3 indicators are: % of private households with only one person, % of people 15+ that are separated, divorced or widowed, and % of families that are lone parent families. Source: Census 2016

👤 PERSONAL HEALTH PRACTICES AND COPING SKILLS

Personal health practices or behaviours are the things one does in their daily life that can make them more or less healthy. This includes a variety of things such as the quantity of fruits and vegetables consumed, or the frequency of alcohol consumption. These activities performed every day can add up to have a large effect on health, influencing the risk of developing certain chronic illnesses.
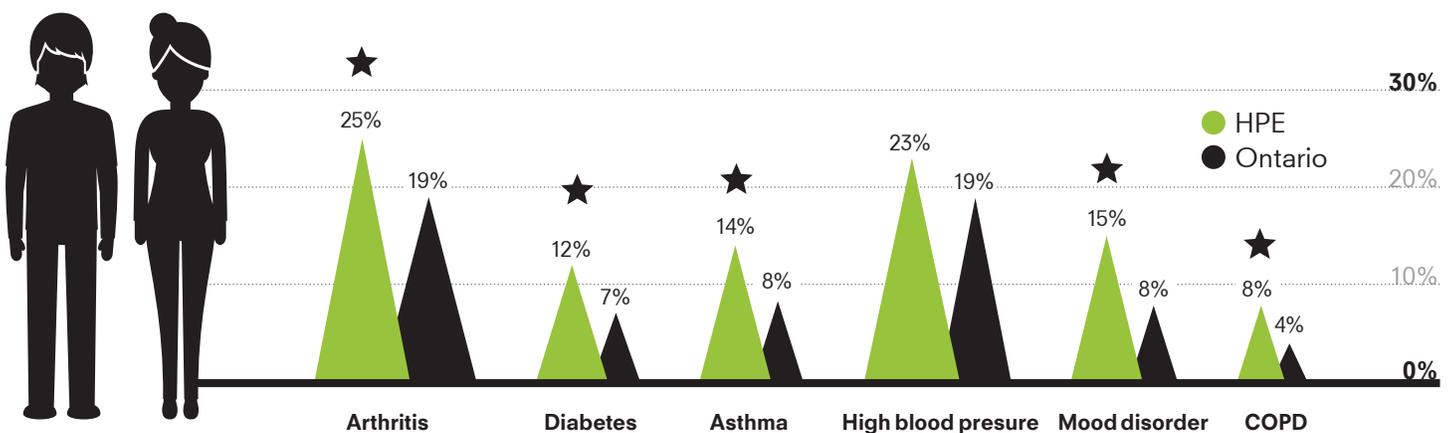
Health Behaviours of HPE Compared to Ontario

Figure 7: Health behaviours of residents in HPE compared to Ontario. Statistically significant differences are denoted by a star. Source: CCHS 2014

HPE has a significantly higher proportion of people that smoke and who are limited in their participation of physical activities when compared to Ontario. Relatedly, chronic conditions like arthritis, diabetes, asthma, mood disorders and COPD are also more prevalent in HPE. Smoking has been proven to be a cause of COPD.[16] Limitations to physical activity may be forcing more people to adopt a sedentary lifestyle, which will lead to higher rates of chronic illnesses like diabetes.[17]

Health Outcomes of HPE Compared to Ontario

Figure 8: Health outcomes of residents in HPE compared to Ontario. Statistically significant differences are denoted by a star. Source: CCHS 2014

HEALTHY CHILDHOOD DEVELOPMENT

The conditions and experiences that a child faces have been seen to carry implications throughout the rest of their adult life. For example, toxic stress, a prolonged negative stress that a child may face, will affect their development and may cause serious health issues. Stress and other negative circumstances are most damaging if experienced within the first 6 years of life, the most important time for brain development.[8] It is important to address such issues earlier, to prevent more serious downstream complications.

EDI Vulnerability in HPE

The Early Development Instrument (EDI) score is a rating given to kindergarten students by their teachers. The students' vulnerability in terms of 5 different types of development is evaluated. The 5 categories are:

1. Physical health and well-being
2. Social competence
3. Emotional maturity
4. Language and cognitive development
5. Communication skills and general knowledge

% of children vulnerable in one or more sections of EDI

≥ 45%	34% – 44%	25% – 33%	<25%	No data

A child's development can be impacted by **negative circumstances** such as[18–20]:

- Poverty
- Parental divorce
- Abuse
- Institutionalization

Some **negative outcomes** associated with a poor childhood development include[21]:

- Poor physical health
- Poor emotional health
- Lack of social competence
- Unhealthy coping behaviours

There are **protective factors** that may aid in childhood development including[20]:

- Emotional support from parents
- Positive relationships with adult outside family
- Support from organizations

Figure 9:
The EDI scores for HPE, by zone. Darker indicates a greater percentage of students that are vulnerable in one or more sections. Source: Hastings County Data Analysis Coordinator

✚ HEALTH SERVICES

Health service inaccessibility is a determinant of poor health. One is less likely to seek treatment for perceived health issues, legitimate or not, if they have low access to health services. In general, rural and less affluent areas suffer from lower number of health services, causing the population that live there to experience negative health outcomes.

In a recent study by the Institute for Clinical Evaluative Sciences (ICES), it was shown that there are differences in access to health services in Ontario based on where one lives.[22]

Large parts of HPE, like many other rural areas in southern Ontario, have very low accessibility to primary care physicians. Many of these places have a minimum driving distance of 30 minutes or more to the nearest physician, providing a substantial barrier to medical care.
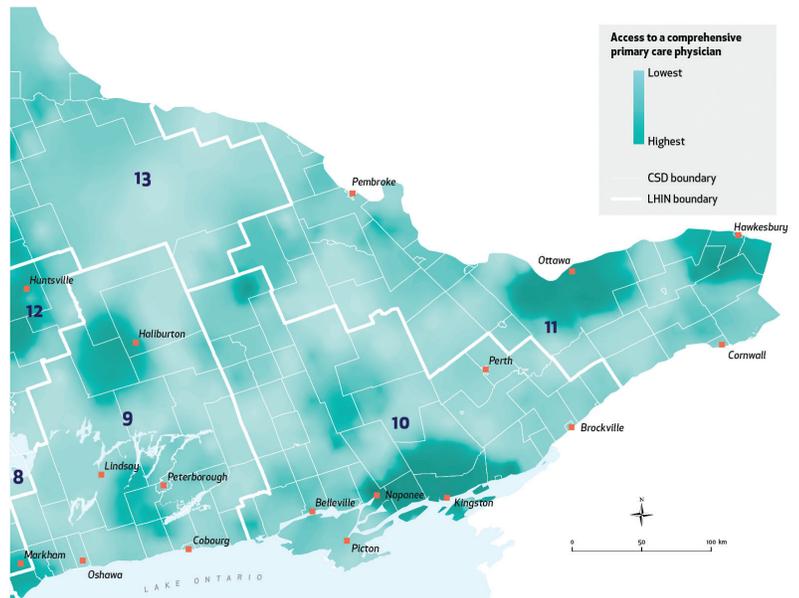
Figure 10:
Access to a comprehensive primary care physician within a 30 minute driving time in South Eastern Ontario 2014/2015. Source: ICES 2017

HPE has a high level of potentially avoidable mortality, which is the combination of both treatable and preventable causes of death when compared to Ontario. For both regions, avoidable mortality is a large portion of the premature mortality rate (Figure 11). This may be a consequence of low healthcare utilization, as lack of accessible health services is a major reason why people are not able to utilize health services. This is particularly true for the treatment of chronic conditions and for regular medical check-ups.[23,24]

Potentially avoidable mortality
● HPE
● Ontario
HPE: 253.3
Ontario: 192.5

Premature mortality
HPE: 348.4
Ontario: 267.2

Age-standardized rate (per 100 000 population)

Figure 11: Age-standardized mortality rates (per 100 000 people) for residents in HPE compared to Ontario. Source: CANSIM table 102 - 4315

🌍 PHYSICAL ENVIRONMENT

The physical environment one lives in has many different effects on one's health. Some factors are more obvious such as water quality and air pollution, but other factors are more subtle such as the walkability of the area one lives in. Many places in HPE are physically isolated, and as a result many people commute by car. People traveling by car are not profiting from the health benefits associated with biking or walking, and are at a higher risk of cardiovascular disease.[25]

👥 SOCIAL ENVIRONMENT

The sense of community belonging one has and their engagement with their social environment can help support their health.[26] Being an active member of the local community can help someone cope with difficult circumstances. Being aware of available resources in the community may also serve to improve health. This determinant acts in ways similar to the social support network determinant of health. As such, someone with less personal support may benefit more from engaging in a positive social environment.

👥 CULTURE

Certain cultures are at a higher risk of health problems. For example, **Indigenous populations** suffer from lower income and lower levels of educational attainment.[27] This creates problems with food insecurity and crowded housing for Indigenous Canadians. The rates of infectious and chronic diseases are higher as well as suicide rates and substance abuse, when compared to the Canadian population.[4] This is of particular concern to HPE, where there is a larger aboriginal population compared to Ontario (5% vs. 2%) (NHS 2011).

Immigrants to Canada are another group that may be at a higher risk of negative health. Immigrants generally suffer from higher unemployment, underemployment, and social exclusion.[4,28] Conversely, there is a healthy immigrant effect which is when newly landed immigrants are actually found to be healthier than the Canadian population, but then eventually regress to Canadian levels.[29] There is a much smaller immigrant population in HPE compared to Ontario (7% vs. 29%) (NHS 2011).

👥 GENDER

Gender and the societal roles of gender play a part in determining one's health. Women tend to earn less, and be the parent in lone parent families more frequently than males;[30] putting them at higher risk of poverty and the negative health that accompanies it.[25] Males on the other hand are more susceptible to social exclusion and workplace related injuries, which bring about different health challenges.[4] Gender identity may also affect one's health; gay, lesbian and transgender youth are at a particularly high risk of developing mental health issues for example.[31]

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