Addressing Social Determinants of Health in the Waterloo Wellington Local Health Integration Network Area

A Public Health Perspective on Local Health, Policy, and Program Needs

Developed in collaboration by Wellington-Dufferin-Guelph Public Health, Region of Waterloo Public Health, and Grey Bruce Public Health for the Waterloo Wellington Local Health Integration Network
Acknowledgements

Steering Committee

Co-Chairs
Andrea Roberts  Director, Child & Family Health, WDGPH\textsuperscript{1}
Sharlene Sedgwick Walsh  Director, Healthy Living, Planning & Promotion, ROWPH\textsuperscript{2}

Members
Wing Chan  Health Data Analyst, WDGPH
Jessica Deming  Epidemiologist, ROWPH
Melissa Kwiatkowski  Planner, System Design & Transformation, WWLHIN\textsuperscript{3}
Alanna Leffley  Senior Epidemiologist, GBHU\textsuperscript{4}
Jennifer MacLeod  Program Manager, Health Analytics, WDGPH
Kristina Schmidt  Health Data Analyst, WDGPH
Patrick Seliske  Epidemiologist, WDGPH
Erin Tardiff  Public Health Planner, ROWPH

Authors

Lead Author
Daniela Seskar-Hencic

Wing Chan  Health Data Analyst, WDGPH
Jennifer MacLeod  Program Manager, Health Analytics, WDGPH
Andrea Roberts  Director, Child & Family Health, WDGPH
Sharlene Sedgwick Walsh  Director, Healthy Living, Planning & Promotion, ROWPH
Kristina Schmidt  Health Data Analyst, WDGPH

Primary Contributors
Jessica Deming  Epidemiologist, ROWPH
Stephen Drew  Health Data Analyst, ROWPH
Alanna Leffley  Senior Epidemiologist, GBHU
Patrick Seliske  Epidemiologist, WDGPH
Heather Snider  Program Assistant, WDGPH
Erin Tardiff  Public Health Planner, ROWPH

Additional Contributors
Nam Bains  Team Lead, LHIN Support Team, MOHLTC\textsuperscript{5}
Lynn Bestari  Early Years Data Analysis Coordinator, Guelph CHC\textsuperscript{6}
Linda Davies  Program Manager, Child and Reproductive Health, GBHU
Sarah Ellis  Program Manager, Vaccine Preventable Diseases, GBHU
Melissa Horan  Health Promotion Specialist, WDGPH
Virginia McFarland  Health Data Analyst, GBHU
Asma Razzaq  Epidemiologist, ROWPH
Andrea Reist  Director, Child and Family Health, ROWPH
Amy Romagnoli  Data Analysis Coordinator, YMCA Ontario Early Years
Amanda Tavares  Health Data Analyst, ROWPH

Funding for the development of this report was provided by the Waterloo Wellington LHIN.

\textsuperscript{1} Wellington-Dufferin-Guelph Public Health
\textsuperscript{2} Region of Waterloo Public Health
\textsuperscript{3} Waterloo Wellington Local Health Integration Network
\textsuperscript{4} Grey Bruce Health Unit
\textsuperscript{5} LHIN Support Unit of the Health Analytics Branch, Ontario Ministry of Health and Long Term Care
\textsuperscript{6} Guelph Community Health Centre
# Contents

Executive Summary........................................................................................................... i

Introduction..................................................................................................................... 1
  Content and Organization of the Report ................................................................. 1
  Waterloo Wellington LHIN Geography .................................................................. 3
  Waterloo Wellington LHIN Neighbourhoods ....................................................... 3
  Waterloo Wellington LHIN Population ................................................................... 3

Social Determinants of Health ....................................................................................... 8
  Low Income ............................................................................................................. 10
    Low Income and Hospitalizations ..................................................................... 11
    Low Income and the Physical Environment ...................................................... 13
  Low Income and Intersectionality ....................................................................... 14
  Early Child Development ....................................................................................... 14
  Immigrants ............................................................................................................ 16
  Visible Minorities ................................................................................................. 17
  Rural Communities ............................................................................................... 17
  Education ............................................................................................................... 18
  Social and Community Support .......................................................................... 18
  Housing ................................................................................................................ 19
  The Cost of Health Inequities ............................................................................. 19

Local Picture of the WWLHIN – Social Determinants of Health and Health Outcomes... 20
  Indicators of Income ............................................................................................. 21
    Key Findings of Indicators Used in Ranking of Neighbourhoods .................. 21
    Key Findings of Additional Indicators ............................................................... 23
  Indicators of Education ......................................................................................... 28
    Key Findings of Indicators Used in Ranking of Neighbourhoods .................. 28
    Key Findings of Additional Indicators ............................................................... 28
  Indicators of Social and Community Support .................................................... 30
    Key Findings of Indicators Used in Ranking of Neighbourhoods .................. 30
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Findings of Additional Indicators</td>
<td>30</td>
</tr>
<tr>
<td>Indicators of Housing</td>
<td>32</td>
</tr>
<tr>
<td>Key Findings of Indicators Used in Ranking of Neighbourhoods</td>
<td>32</td>
</tr>
<tr>
<td>Key Findings of Additional Indicators</td>
<td>32</td>
</tr>
<tr>
<td>Indicators of Early Child Development</td>
<td>34</td>
</tr>
<tr>
<td>Key Findings of Indicators</td>
<td>34</td>
</tr>
<tr>
<td>Indicators of Immigration</td>
<td>39</td>
</tr>
<tr>
<td>Key Findings of Indicators Used in Ranking of Neighbourhoods</td>
<td>39</td>
</tr>
<tr>
<td>Key Findings of Additional Indicators</td>
<td>39</td>
</tr>
<tr>
<td>Indicators of Health Outcomes</td>
<td>41</td>
</tr>
<tr>
<td>Key Findings of Indicators</td>
<td>41</td>
</tr>
<tr>
<td>Local Picture of the WWLHIN - Priority Neighbourhoods</td>
<td>47</td>
</tr>
<tr>
<td>Overall Ranking of Neighbourhoods</td>
<td>47</td>
</tr>
<tr>
<td>Social Determinants of Health by Neighbourhood</td>
<td>50</td>
</tr>
<tr>
<td>Child Poverty and Priority Neighbourhoods</td>
<td>50</td>
</tr>
<tr>
<td>Developmental Health and Priority Neighbourhoods</td>
<td>50</td>
</tr>
<tr>
<td>Immigrant Population and Priority Neighbourhoods</td>
<td>51</td>
</tr>
<tr>
<td>Health Care Utilization and Priority Neighbourhoods</td>
<td>52</td>
</tr>
<tr>
<td>Summary</td>
<td>53</td>
</tr>
<tr>
<td>Social Determinants of Health and the Public Health Sector</td>
<td>54</td>
</tr>
<tr>
<td>Capacities, Needs and Progress in the Waterloo Wellington LHIN Area Public Health Sector</td>
<td>57</td>
</tr>
<tr>
<td>Grey Bruce Health Unit</td>
<td>57</td>
</tr>
<tr>
<td>Healthy Communities Partnership in Grey Bruce</td>
<td>59</td>
</tr>
<tr>
<td>Wellington-Dufferin-Guelph Public Health</td>
<td>59</td>
</tr>
<tr>
<td>Healthy Communities Partnership in Wellington, Dufferin and Guelph</td>
<td>59</td>
</tr>
<tr>
<td>Region of Waterloo Public Health</td>
<td>60</td>
</tr>
<tr>
<td>Healthy Communities Partnership in Waterloo Region</td>
<td>63</td>
</tr>
<tr>
<td>Interventions to Address Social Determinants of Health</td>
<td>64</td>
</tr>
<tr>
<td>Understanding Promising Practices</td>
<td>66</td>
</tr>
</tbody>
</table>
# TECHNICAL REPORT

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF ABBREVIATIONS</td>
<td>4</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>5</td>
</tr>
<tr>
<td>METHODOLOGY</td>
<td>5</td>
</tr>
<tr>
<td>Neighbourhood Geography</td>
<td>5</td>
</tr>
<tr>
<td>Data Sources</td>
<td>5</td>
</tr>
<tr>
<td><strong>Health Outcomes Indicators</strong></td>
<td>6</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>7</td>
</tr>
<tr>
<td>Rates for Indicators</td>
<td>7</td>
</tr>
<tr>
<td><strong>Neighbourhood Maps for Indicators</strong></td>
<td>7</td>
</tr>
<tr>
<td>Data Suppression</td>
<td>8</td>
</tr>
<tr>
<td><strong>Overall Ranking of Neighbourhoods</strong></td>
<td>8</td>
</tr>
<tr>
<td>Geocoding Methods for Health Outcome Indicators</td>
<td>9</td>
</tr>
<tr>
<td>FINDINGS</td>
<td>10</td>
</tr>
<tr>
<td>Social Determinants of Health</td>
<td>10</td>
</tr>
<tr>
<td>Waterloo Wellington LHIN Geography</td>
<td>11</td>
</tr>
<tr>
<td>Waterloo Wellington LHIN Neighbourhoods</td>
<td>11</td>
</tr>
<tr>
<td>Waterloo Wellington LHIN Population</td>
<td>16</td>
</tr>
<tr>
<td>Indicators of Income</td>
<td>21</td>
</tr>
<tr>
<td>Individual and Household Income</td>
<td>23</td>
</tr>
<tr>
<td>Low Income Status</td>
<td>24</td>
</tr>
<tr>
<td>Children Living in Low Income Households</td>
<td>25</td>
</tr>
<tr>
<td>Government Transfer Payments</td>
<td>25</td>
</tr>
<tr>
<td>Employment Status</td>
<td>29</td>
</tr>
<tr>
<td>Indicators of Education</td>
<td>31</td>
</tr>
<tr>
<td>Without Completed High School Education</td>
<td>32</td>
</tr>
<tr>
<td>High School and Higher Education Levels</td>
<td>32</td>
</tr>
<tr>
<td>Education Level in Special Population Groups</td>
<td>33</td>
</tr>
<tr>
<td>Indicators of Social and Community Support</td>
<td>36</td>
</tr>
<tr>
<td>Health Services</td>
<td>36</td>
</tr>
</tbody>
</table>
Addressing Social Determinants of Health in the Waterloo Wellington LHIN Area: Public Health Perspective on Local Health, Policy, and Programming Needs

Executive Summary

Social determinants of health are the socio-economic, cultural, and environmental conditions that impact overall health. The Final Report on Senate Subcommittee on Population Health states that about 50% of the health outcomes are attributable to socioeconomic factors, another 10% to the physical environment factors, while only 15% to the biological factors and 25% to the health care system (Keon & Pepin, 2009).

This report provides a snapshot of the capacities and needs of the Waterloo Wellington LHIN area communities with health data as it relates to social determinants of health, and an overview of the trends and opportunities for policy and other interventions. This information will be used to assist in determining the focus of our coordinated efforts to address the social determinants of health.

The report has been created with the guidance of the steering committee comprised of representatives from the Grey Bruce Health Unit, the Wellington Dufferin Guelph Public Health Unit, the Region of Waterloo Public Health Unit, and the Waterloo Wellington Local Health Integration Network. The report reflects the evidence from various sources including a literature review, a community and provincial environmental scan and a situational assessment that shows the diverse perspectives of needs, capacities, and actions to address social determinants of health.

Selected Evidence from Literature

- People in the lowest quintile of income groups use health care services approximately twice as much as those in the highest quintile (Public Health Agency of Canada 2004).
- Canadians with the lowest incomes are more likely than other people to suffer from chronic conditions such as diabetes, arthritis, and heart disease; to live with a disability; and to be hospitalized for a variety of health problems (Health Council of Canada 2010). People with the lowest 20% of income were 60% more likely to have two or more chronic conditions; four times more likely to live with disability and three times less likely to have additional health and dental coverage. They are twice as likely to use health care services as those with the highest incomes. (Ontario Physicians Poverty Work Group, 2008).
- When controlling for education, disability, smoking and physical activity, income, and dependence on social assistance are still strongly associated with chronic disease (Community
Social Planning Council of Toronto, University of Toronto Social Assistance in the New Economy Project 2009).

- Approximately 20% of total health care spending may be attributable to these disparities (Public Health Agency of Canada, 2004).
- Children who live in low income households are more likely to have a range of health problems throughout their life, even if their socioeconomic status changes later in life (Ontario Physicians Poverty Work Group, 2008).
- Twelve hospitalization indicators and self-reported health indicators show higher rates of health conditions in people of lower socioeconomic status in urban Canada (Canadian Institute for Health Information, Canadian Population Health Initiative 2008).
- Being poor in a poor neighbourhood is worse than being poor in a non-poor neighbourhood (Braveman, p. 2009).
- The Chief Public Health Officer of Canada states that children who live in poverty, recent immigrants, and Aboriginal people are priority populations.

Social Determinants of Health and Health Care Cost

- In the European Union it is estimated that over 700,000 deaths per year and 33 million cases of ill health could be attributed to social inequities. This further translates into 20% of the total cost of healthcare, 15% of the cost of social security benefits, and 1.4% of loss to GDP every year. The overall monetary impact was estimated to be € 980 billion per year, or 9.4% of GDP (Mackenbach, Meerding & Kunst, 2011).
- An analysis of the economic cost of poverty in Ontario determined that the lowest income quintile accounted for 30.9% of health expenditures, the second quintiles 24.2 %, and the middle quintile for 16.2%. A scenario projecting that the lowest income is raised to the next level suggests that a cost reduction of about 2.9 billion dollars is possible (Laurie, 2008).
- A very recent study conducted by the Public Health Agency of Canada confirms that more than half of all health care expenditures are linked to 20% of Canadians – those who live with the lowest income. The estimated difference in cost between 20% of the population with the lowest income and 20% with the highest is approximately $3.7 billion, or 60% of the estimated burden (Milliken, Long, & Jacobsen, 2011).

Social Determinants of Health in the Waterloo Wellington LHIN Area

The Waterloo Wellington Local Health Integration Network (WWLHIN) is made up of Waterloo Region, Wellington County, and the southern tip of Grey County. Waterloo Region consists of 45 neighbourhoods, Wellington County consists of 7 municipalities as well as 13 neighbourhoods within the City of Guelph, and the portion of Grey County that is part of the WWLHIN includes the Municipality of Southgate and a small area of the Municipality of West Grey. In 2006, the total population for the WWLHIN was 679,375.
Waterloo Wellington Highlights on Income and Employment

Populations that are affected by low income are children and youth, new immigrants, visible minorities, Aboriginal people, seniors, people living with disabilities, and those living in remote rural communities. Low income affects housing security, accompanied by a poor physical environment and accessibility to healthy food. New immigrant families and their children have been identified in many studies as a priority population. Even though the poverty that many immigrants experience is transitional in nature, it lasts long enough to potentially have a serious impact on their growing children.

- Eight neighbourhoods in the WWLHIN had more than 10% of persons in private households with low income.
- Approximately one-quarter of neighbourhoods in the WWLHIN received government transfer payments that represented more than 10% of the total family income.
- The unemployment rate among recent immigrants (i.e. immigrants arriving between 2001 and 2006) was two times greater (11%) than the unemployment rate of the Canadian-born population (5%) or established immigrants (5%) (Workforce Planning Board of Waterloo, Wellington and Dufferin, 2009).
- In Waterloo Region, 45% of children accessed food banks (Food Bank of Waterloo Region, 2008, as cited in Tardiff, 2009).

Waterloo Wellington Highlights on Education

The higher and the more successful the education experience for children and adults is, the better their health will be (Public Health Agency of Canada, 2008). The highest mortality rates in Canada are identified among people who do not have secondary school, those who are unemployed, or who are not seeking jobs, and those who have unskilled jobs and are consequently living on low incomes (Population Health Promotion Expert Group: Working Group on Population Health, 2009).

- In 2006, in all of Waterloo Region, 58.1% of adults between 25 and 64 years of age completed post-secondary education, which was higher than the proportion in Wellesley (41.4%), Woolwich (53.4%), and Wilmot (57.6%) townships (Woolwich Community Health Centre, 2010).
- In Wellington County, 58.5% of adults between 25 and 64 years of age completed post-secondary education.
- In the municipalities of Southgate and West Grey (i.e. the portion that is part of the WWLHIN), 43.1% of adults between 25 and 64 years of age completed post-secondary education.
Highlights on Housing

Affordability of suitable housing is directly related to income and the consequences of the inability to afford suitable housing can lead to either food deprivation or substandard housing conditions, where either or both have direct negative health consequences (Public Health Agency of Canada, 2008).

- In 2006, in the Kitchener-Cambridge-Waterloo Census Metropolitan Area (CMA), 39.2% of tenant households spent 30% or more of their gross household income on rent compared to 41.2% in the Guelph CMA (Statistics Canada, 2011).
- In 2006, in the Kitchener-Cambridge-Waterloo CMA, 16.7% of homeowners spent 30% or more of their household income on major payments compared to 18.3% in the Guelph CMA (Statistics Canada, 2011).

Early Childhood Indicators

Children are particularly vulnerable to living in low income conditions as the complexity of the implications affects their families, even pre-birth, and continues to do so well into their adulthood. Children who live in low income households are at a higher risk of having a number of health problems later in life, even if their socioeconomic status changes. Since these childhood issues are common to all sub-population groups and communities, commitment to addressing these needs in various environments means addressing other potential vulnerabilities such as living in remote rural areas, being a recent immigrant, being a visible minority, etc.

- In 2006, 12.2% of children/youth aged 18 years and under in Waterloo Region were living in a private home with low income (Woolwich Community Health Centre, 2010). In 2005, 7.0% of children/youth aged 18 years and under in Wellington County were living with low income (Wellington-Dufferin-Guelph Public Health, 2010). In 2006, 5.7% of persons aged 18 years and under in the Municipality of Southgate and 6.4% in the entire Municipality of West Grey were living with low income after tax (Glenda Clarke and Associates, 2010).
- Six neighbourhoods had over 20% of families that were headed by lone parents.
- Four neighbourhoods in Wellington County (excluding children with special needs) and five neighbourhoods in Waterloo Region (including children with special needs), had higher proportions of senior kindergarten children who were vulnerable (i.e. scoring below the tenth percentile in two or more Early Development Indicator domains that measure "readiness" to learn).
Priority Neighbourhoods and Health Indicators in Waterloo Wellington

Priority neighbourhoods were identified through a system of ranking all neighbourhoods according to eight social determinants of health (SDOH) indicators. These indicators were chosen based on evidence from existing literature and the data examined in this report. All 65 neighbourhoods were ranked on each of the eight indicators. The indicator ranks were then summed for every neighbourhood. Neighbourhoods appearing in the highest 20% of the overall rank were identified as priority neighbourhoods. A general assessment of priority populations was completed in the context of public health programming in the three health units and through the Healthy Community Partnership consultations. Low income populations, young mothers, children and new immigrants\(^1\) were consistently identified as priority populations. Some areas, particularly in Grey Bruce, also face unique issues with Aboriginal and rural populations.

- There are thirteen priority neighbourhoods in the Waterloo Wellington LHIN area. These neighbourhoods showed higher rates of low income, unemployment status, low education and lack of social and community support, relative to other neighbourhoods in the Waterloo Wellington area.
- Not all thirteen priority neighbourhoods, that were identified using the eight selected indicators, showed higher rates of hospitalizations (related to cardiovascular disease, injury, and diabetes) and mortality (due to lung cancer). Of the non-priority neighbourhoods that ranked highest for negative health outcomes, six were rural areas and four were urban areas.
- Thirteen neighbourhoods in the WWLHIN had more than 10% of children aged 6 years and under who lived in low income households. Ten of these neighbourhoods were previously identified as priority neighbourhoods.
- Based on the Early Development Instrument (EDI), three out of four neighbourhoods in Wellington County with the highest rates of vulnerable senior kindergarten children (excluding children with special needs) were priority neighbourhoods. In Waterloo Region, six out of seven neighbourhoods with the highest rates of vulnerable senior kindergarten children (including children with special needs) were priority neighbourhoods.
- Six of the thirteen neighbourhoods had high rates of immigrants, recent immigrants, and visible minorities.
- Downtown Kitchener and Southgate were the only two neighbourhoods in the LHIN where over 2% of people declared Aboriginal status. Aboriginal populations may be vulnerable to discrimination, stigmatization, and marginalization, and may not have access or receive culturally appropriate resources and services.
- Five neighbourhoods in the WWLHIN had hospitalization rates for cardiovascular disease of more than 1500 hospitalizations per 100,000 people on average over three fiscal years.

\(^1\) Grey Bruce has not identified new immigrants as a priority population
• Seven neighbourhoods had hospitalization rates for injury between 800 and 1,255 hospitalizations per 100,000 people on average over three fiscal years.
• Three neighbourhoods had hospitalization rates for diabetes of nearly 200 hospitalizations per 100,000 people on average over three fiscal years.
• Five neighbourhoods in the WWLHIN had between 75 and 116 deaths related to lung cancer per 100,000 people on average over three calendar years.

Evidence from the Policy and Practice

The review of the policy directions and promising interventions highlighted several key strategies to be considered:

• **Development of policies** to support sustainable employment and living wage; improved housing; child development conditions; improvements in the built environment; affordability and accessibility to recreation and sports; and improvements in food security. Interest in policy advocacy exists in the WWLHIN communities and could be further expanded by improving the connections with, and supporting local coalitions and groups that are spearheading poverty reduction strategies, early childhood, new immigrant, and other policy initiatives that are unique to addressing the social determinants of health.

• **Comprehensive community interventions for families with children** that include collaboration of health, education, and social service agencies. The purpose of these initiatives is to provide seamless services and opportunities for policy advocacy; community-wide planning activities, and systems-based approaches that build on existing strengths and capacities within communities.

• **Neighbourhood-based interventions and peer programming** that offer intensified and complementary interventions to community action and institution-based support. These interventions address the unique needs of priority populations in an informal, accessible, flexible, and culturally appropriate way. This approach also considers co-location of services, and offering services close to where people live or places they frequent.

• **Interventions that focus on specific priority populations and local issues** that have proven to have a strong and positive impact in closing the health equity gap, such as smoking cessation interventions, **Triple P** parenting initiative, the **Nurse Family Partnership**, and **Pathways to Education**.

• **Use of health equity impact assessments** in both planning and delivery of services in order to design equity-focused interventions within universal programs and beyond. Promoting the use of equity impact assessment beyond the health sector is another domain that is gaining momentum across the province.

• **Intervention research** to build an evidence base for promising practices that addresses the social determinants of health in order to justify the decision to use and expand these interventions in our communities as well as secure substantial financial support. There are
many examples of promising practices and interventions at the neighbourhood level across the WWLHIN area, for example, peer-based programs/supports in Waterloo and Guelph. Research should also focus on directions for further policy development.

**Recommendations**

Serious and pervasive concerns about growing health disparities, the increasing prevalence of chronic conditions, and the need to look at the sustainability of the health care system are converging to create a sense of urgency about health promotion and disease prevention in Canada. Since the greatest gains in increasing health can be made in vulnerable and marginalized sub-groups of our population, activities supporting specific efforts in these areas need to be undertaken.

Communities in Waterloo Wellington have demonstrated a commitment to working on improving the health of our residents. A number of local initiatives could be strengthened by using a “whole community” approach, whereby action is taken collectively and results are measured and demonstrated.

The Steering Committee generated the following recommendations to address social determinants of health and narrow the health equity gaps in the WWLHIN area communities:

1. Share and validate the findings and recommendations of this report with the affected communities, networks, organizations, and decision makers and invite their action.
2. Enable the use of accessible, culturally appropriate, and meaningful interventions that have proven to increase health benefits and reduce health care costs. Specifically,
   a. **To improve high school graduation rates:** invest in the Pathways to Education program in the priority neighbourhoods. Staying in school and educational achievements lead to improvement in socioeconomic conditions and therefore minimize or remove barriers to health. This program is a proven social and health investment that delivers between 40 and 70 percent reduction in high school drop-out rate. The program has been successfully implemented in vulnerable neighbourhoods in collaboration with parents, community agencies, volunteers, local school boards, and secondary schools. Pathways delivers a $24 return for every $1 invested.
   b. To address **low income, accessibility and cultural barriers**, invest in peer-based programs such as the Peer Health Worker and Community Nutrition Worker programs in Waterloo region and the Community Development Neighbourhood programs in Guelph that have proven to assist people in gaining access to information, and build skills in a non-threatening way while keeping their unique needs in mind. These interventions reduce social isolation in at risk populations including new immigrant families; improve adoption of healthy living practices; and improve parenting skills (including reducing the need for intervention related to child protection), nutrition, and physical activity. Despite the proven
benefits and being very cost effective, some of these programs operate on limited, very modest funds or inconsistent, pilot funds. In the case of the neighbourhood programs supported by community development workers in Guelph, the program has recently been discontinued despite wide based support of health and social service partners due to funding.

c. To address Early childhood development: support the existing work of community agencies by investing in an evidence based parenting support program like the Triple P initiative that has proven to prevent behavioural, emotional and developmental problems in children by enhancing the knowledge, skills and confidence of their parents. It is important to offer both universal and targeted supports to families as there is clear evidence that while vulnerabilities in children exist in low income areas, they are also seen across social gradients.

d. To address chronic disease: support the combination of interventions and policies such as those for smoking cessation that include nicotine replacement therapy, physician’s advice, individual behavioural counselling, combined with tobacco tax increases and local/provincial legislation (policies). A combination of universal and targeted interventions is essential for creating and sustaining significant behavioural changes that ultimately impact acute health care costs.

3. Develop and support policies to enable sustainable livelihoods and optimal living conditions of all individuals and families in the WWLHIN area. This includes:
   a. Policies to end persistent poverty
   b. Policies to support employment and living wage
   c. Policies to increase food security
   d. Policies to improve housing
   e. Policies to support child development and child care
   f. Policies to improve the physical environment

Policy actions need to be supported by the following working principles and support mechanisms:

1. Priority neighbourhoods and communities need to be engaged in the development of optimal solutions that fit their needs and unique circumstances. It is important to ensure that no further harm or stigmatization occurs in this process.
2. Sharing the evidence about the cost effectiveness of public health policies and interventions with private, public, business and other sectors and inviting them to join the health sector in investing in early years interventions and poverty reduction.
3. Introducing mechanisms that link existing WWLHIN community networks across the issues (e.g. linking early years and poverty reduction networks) in order to strengthen their impact and maximize policy and intervention outcomes.
4. Developing mechanisms to monitor population health of the WWLHIN area residents and the progress in narrowing down the health equity gaps in identified areas.
5. Supporting intervention research and continue to build on the existing evidence base for promising practices in addressing social determinants of health.

While not an exhaustive list, the recommendations above provide a starting point for broader community action. The unique opportunity, created by the WWLHIN in commissioning this report, to work together across Wellington, Waterloo, and South Grey has highlighted the critical importance of coordinated, collaborative efforts needed to impact the health of our most vulnerable residents. The recommendations are, quite simply, the beginning of our collective work to reduce health inequities for the communities of the WWLHIN area.
Introduction

Social determinants of health are the socio-economic, cultural, and environmental conditions of our lives that impact overall health. A recent publication from the Health Council of Canada, *Stepping it Up: Moving the Focus from Health Care in Canada to a Healthier Canada*, confirms that Canadians with the lowest incomes are more likely to suffer from chronic conditions such as diabetes, arthritis, and heart disease; to live with a disability; and to be hospitalized for a variety of health problems. They are twice as likely to use health care services as those with the highest incomes.

Serious and pervasive concerns about growing health disparities, the increasing prevalence of chronic conditions, and the need to look at sustainability of the health care system are converging to create a sense of urgency about health promotion and disease prevention in Canada. Since the greatest gains in improving health can be made in vulnerable and marginalized sub-groups of our population, it is important to undertake activities supporting specific efforts in these areas.

Communities within the boundaries of the Waterloo Wellington LHIN, through their respective public health units, have demonstrated their commitment to improving the health of our residents by focusing on addressing the social determinants of health. However, many of the existing health initiatives could be strengthened by using a “whole of community” approach, whereby action is taken collectively and results are measured and demonstrated.

This report provides a “snapshot in time” of the capacities and needs of our communities using health data (as it relates to social determinants of health), current actions in the public health sector, and an overview of the trends and opportunities for policy and other interventions. This information will be used to assist in determining the focus of our coordinated efforts to address the social determinants of health.

Content and Organization of the Report

This report has been created with the guidance of a steering committee comprised of representatives from the Grey Bruce Health Unit, Wellington-Dufferin-Guelph-Public Health, the Region of Waterloo Public Health Unit, and the Waterloo Wellington Local Health Integration Network. The report reflects evidence from various sources including a literature review, a community and provincial environmental scan, and a situational assessment to describe the different perspectives of need, as well as the capacity and actions to address social determinants of health.
Four main types of evidence were considered for this report. Those are:

- Evidence from literature, government, and other research and evaluation reports
- Evidence describing the policies and practices in Ontario, and beyond
- Statistical and spatial evidence of hospitalization and other population health data for the WWLHIN area
- Experiential evidence obtained through a facilitated group discussion, where the steering group, working group, and several topic experts from the three health units engaged in a review of the preliminary report and generated recommendations for action

The report begins with a summary of the current evidence presented by the literature on how social determinants of health impact population health. The primary purpose of this section is to introduce the impact that social determinants of health have on health. In addition, the quantity and quality of the arguments in the literature were used as a guide to narrow down the focus of the report. The literature review revealed that low income and early childhood development are the two social determinants of health that offer the most extensive and compelling evidence for action, as well as the greatest impact on health in addition to affecting the relationship with many other social determinants of health. Consequently, examination of the local needs and capacities, and a review of interventions, primarily focuses on low income populations and early childhood development.

Several significant limitations influenced the outcomes of this report. A short timeline for the completion of the report limited the ability for a thorough and systematic gathering of evidence. Some valuable information on specific policies and interventions has been omitted given the broad scope of interest and the need to focus the report. Our hope is that the detailed information provided in the appendices and bibliographic references will allow interested readers to seek further detail on a number of promising and progressive practices. Some limitations must be considered when interpreting the data findings presented in this report. For example, statistics from various pre-existing reports were cited; however, the data may not be comparable as a result of differences in population definition, methodology, timeframe, and so on. Another significant limitation of the data findings is that the social determinants of health data represent the WWLHIN population as it was in 2006, whereas most of the health outcomes data represent the population in more recent timeframes, from 2007 to 2009. The 2006 social determinants of health data may not accurately reflect today’s WWLHIN population as a result of changes, including the recent economic recession. Please refer to the Technical Report for detailed information on limitations of the data findings.
Waterloo Wellington LHIN Geography
The Waterloo Wellington Local Health Integration Network (WWLHIN) is made up of Waterloo Region, Wellington County, and the southern tip of Grey County. Figure 1 shows a map of the WWLHIN boundary.

Figure 2 shows the three public health unit (PHU) areas within the WWLHIN. The three PHUs involved include Region of Waterloo Public Health, Wellington-Dufferin-Guelph Public Health, and Grey Bruce Health Unit. The entire Waterloo Region is part of the WWLHIN; however, only parts of the other two PHU areas are within the WWLHIN. They include Wellington County (which includes the City of Guelph), and the Municipality of Southgate and a small area of the Municipality of West Grey (both part of Grey County).

Waterloo Wellington LHIN Neighbourhoods
Table 1 lists the 67 neighbourhoods (made up of municipalities, townships, towns, and custom-defined neighbourhoods) that are included in the mapping of social determinants of health (SDOH) and health outcomes for the WWLHIN. Waterloo Region consists of 45 neighbourhoods, Wellington County consists of 7 municipalities as well as 13 neighbourhoods within the City of Guelph, and the portion of Grey County that is part of the WWLHIN includes the Municipality of Southgate and a small area of the Municipality of West Grey. The numbers given to each of the reporting areas in Table 1 correspond to the labelled neighbourhoods in Figure 3.

Two neighbourhoods in the City of Guelph, namely Commercial Area and University, were suppressed, leaving 65 reporting areas to be used in the data analysis. All suppressed data are shown as “Not reportable” on the maps presented in the report. Please refer to the Technical Report for more information.

Waterloo Wellington LHIN Population
In 2006, the total population for the WWLHIN was 679,375. The population for each PHU area is listed below:

- Waterloo Region – 473,330
- Wellington County – 198,255
- Municipality of Southgate and part of the Municipality of West Grey – 7,790

*Please refer to pages 16 to 20 of the Technical Report for further information and mapping of the WWLHIN population with respect to:

- Population distribution by age and sex.
- Proportion of the total population of the WWLHIN, by neighbourhood.
- Proportion of the population aged 14 years and under, by neighbourhood.
- Proportion of the population aged 65 years and over, by neighbourhood.
Figure 1 - WWLHIN boundaries

Legend

- LHIN Boundary
- Neighbourhood Boundary
- Municipality of West Grey Boundary*
- Highway 401

*Only part of the Municipality of West Grey is in the WWLHIN.

Figure 2 – Public health unit areas within the WWLHIN

Public Health Unit Area
- **Southgate / West Grey** *
- **Wellington County**
- **Waterloo Region**

* Municipalities of Southgate and West Grey are part of Grey County, and only part of the Municipality of West Grey is in the WWLHIN.

### Table 1 - Neighbourhood names in the WWLHIN (see corresponding Figure 3)

<table>
<thead>
<tr>
<th>Reporting Area (Municipality/Township/Town/Neighbourhood)</th>
<th>#</th>
<th>Reporting Area (Municipality/Township/Town/Neighbourhood)</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>--- WATERLOO REGION ---</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>City of Cambridge</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blair</td>
<td>1</td>
<td>North Cambridge</td>
<td>6</td>
</tr>
<tr>
<td>Central Preston/Preston Heights</td>
<td>2</td>
<td>North Galt/Elgin Park</td>
<td>7</td>
</tr>
<tr>
<td>Galt City Centre/South Galt</td>
<td>3</td>
<td>Shades Mills</td>
<td>8</td>
</tr>
<tr>
<td>Hespeler</td>
<td>4</td>
<td>South East Galt</td>
<td>9</td>
</tr>
<tr>
<td>Langs/Industrial</td>
<td>5</td>
<td>Southwood/Southwest Galt</td>
<td>10</td>
</tr>
<tr>
<td><strong>City of Kitchener</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alpine/Laurietan</td>
<td>11</td>
<td>Grand River/Stanley Park/Chicopee</td>
<td>18</td>
</tr>
<tr>
<td>Bridgeport/Breithaupt/Mount Hope</td>
<td>12</td>
<td>Hidden Valley/Pioneer Tower</td>
<td>19</td>
</tr>
<tr>
<td>Country Hills/Huron Area</td>
<td>13</td>
<td>Highland West</td>
<td>20</td>
</tr>
<tr>
<td>Doon/Pioneer Park</td>
<td>14</td>
<td>Southwest Kitchener</td>
<td>21</td>
</tr>
<tr>
<td>Downtown Kitchener and Area</td>
<td>15</td>
<td>Vanier/Rockway</td>
<td>22</td>
</tr>
<tr>
<td>Forest Heights/Forest Hill/Lakeside</td>
<td>16</td>
<td>Victoria Hills/Cherry Hill/KW Hospital</td>
<td>23</td>
</tr>
<tr>
<td>Frederick/Rosemount/Auditorium</td>
<td>17</td>
<td>Westmount*</td>
<td>24</td>
</tr>
<tr>
<td><strong>City of Waterloo</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beechwood</td>
<td>25</td>
<td>Lincoln/Dearborn</td>
<td>30</td>
</tr>
<tr>
<td>Central Waterloo</td>
<td>26</td>
<td>West Waterloo</td>
<td>31</td>
</tr>
<tr>
<td>Columbia/Lakeshore</td>
<td>27</td>
<td>Westmount*</td>
<td>24</td>
</tr>
<tr>
<td>Eastbridge/Lexington</td>
<td>28</td>
<td>Westvale</td>
<td>32</td>
</tr>
<tr>
<td>Lakeshore North/Conservation</td>
<td>29</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Township of North Dumfries</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ayr</td>
<td>33</td>
<td>North Dumfries/Beverly</td>
<td>34</td>
</tr>
<tr>
<td><strong>Township of Wellesley</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wellesley Rural North</td>
<td>35</td>
<td>Wellesley Village</td>
<td>37</td>
</tr>
<tr>
<td>Wellesley Rural South</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Township of Wilmot</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baden</td>
<td>38</td>
<td>New Hamburg</td>
<td>40</td>
</tr>
<tr>
<td>New Dundee/Mannheim</td>
<td>39</td>
<td>North Wilmot</td>
<td>41</td>
</tr>
<tr>
<td><strong>Township of Woolwich</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elmira</td>
<td>42</td>
<td>Woolwich Rural East</td>
<td>44</td>
</tr>
<tr>
<td>St. Jacobs</td>
<td>43</td>
<td>Woolwich Rural North</td>
<td>45</td>
</tr>
<tr>
<td><strong>--- WELLINGTON COUNTY ---</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>City of Guelph</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brant Waverly</td>
<td>46</td>
<td>Onward Willow</td>
<td>53</td>
</tr>
<tr>
<td>Downtown/Sunny Acres/Old University</td>
<td>47</td>
<td>Parkwood Gardens</td>
<td>54</td>
</tr>
<tr>
<td>Commercial Area</td>
<td>48</td>
<td>Pine Ridge Clairfields Westminster Woods</td>
<td>55</td>
</tr>
<tr>
<td>Exhibition Park</td>
<td>49</td>
<td>Two Rivers/St. George’s Park</td>
<td>56</td>
</tr>
<tr>
<td>Grange Hill East</td>
<td>50</td>
<td>University</td>
<td>57</td>
</tr>
<tr>
<td>Hanlon Creek Hales Barton</td>
<td>51</td>
<td>West Willow Woods</td>
<td>58</td>
</tr>
<tr>
<td>Kortright Hills</td>
<td>52</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Wellington</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Township of Centre Wellington</td>
<td>59</td>
<td>Minto</td>
<td>63</td>
</tr>
<tr>
<td>Erin</td>
<td>60</td>
<td>Township of North Wellington</td>
<td>64</td>
</tr>
<tr>
<td>Township of Guelph/Eramosa</td>
<td>61</td>
<td>Township of Puslinch</td>
<td>65</td>
</tr>
<tr>
<td>Township of Mapleton</td>
<td>62</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>--- GREY COUNTY ---</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipality of West Grey</td>
<td>66</td>
<td>Municipality of Southgate</td>
<td>67</td>
</tr>
</tbody>
</table>

*Westmount is a neighbourhood shared between the City of Kitchener and the City of Waterloo.
Figure 3 - WWLHIN neighbourhoods, by public health unit area *(see corresponding Table 1)*

Health Unit Area

- **Southgate / West Grey**
- **Wellington County**
- **Waterloo Region**

*Municipalities of Southgate and West Grey are part of Grey County. Note that only part of the Municipality of West Grey is in the WWLHIN.*

Social Determinants of Health

The health and well-being of individuals is determined by a complex set of interactions among a range of social and economic factors, factors in the physical environment, individual behaviours, living conditions, and genetic endowment. This list of factors is often referred to as determinants of health (Ontario Ministry of Health and Long-Term Care, 2009b). A subset of these factors that refers to social and economic conditions is defined as social determinants of health. Social determinants of health are the conditions in which people are born, grow, live, play, work, and age, including the health system. These conditions are shaped by the distribution of power and resources at global, national, and local levels, which are themselves influenced by policy choices (World Health Organization, 2011).

The Final Report of the Senate Subcommittee on Population Health states that about 50% of health outcomes are attributable to socioeconomic factors, another 10% to physical environment factors, 15% to biological factors, and 25% to the health care system (Keon & Pepin, 2009).

Similar findings have been reported recently in the United States, where a meta-analysis of all articles published between 1980 and 2007 that deal with the relationship between social factors and mortality concluded that the estimated number of deaths attributable to low education, racial segregation, low social support, and various measures of low income in the United States is equal to the total of the combined patho-physiological and behavioural causes (Galea, Tracy, Hoggatt, DiMaggio, & Karpati, 2011).

Figure 4 – Graph adapted from The Health of Canadians - The Federal Role, Volume One: The Story so Far, March 2001, Standing Senate Committee on Social Affairs, Science and Technology

Estimated Impact of Social Determinants of Health

- Health Care System: 25%
- Social and Economic Environment: 50%
- Biology and Genetics: 15%
- Physical Environment: 10%

Similar findings have been reported recently in the United States, where a meta-analysis of all articles published between 1980 and 2007 that deal with the relationship between social factors and mortality concluded that the estimated number of deaths attributable to low education, racial segregation, low social support, and various measures of low income in the United States is equal to the total of the combined patho-physiological and behavioural causes (Galea, Tracy, Hoggatt, DiMaggio, & Karpati, 2011).
One specific list of social determinants of health from a Canadian context includes the following factors:

- Aboriginal Status
- Early Life
- Education and Literacy (Mikonnen & Raphael, 2010)
- Employment and Working Conditions
- Unemployment and Job Security
- Disability
- Food Security
- Gender
- Health Care Services
- Housing
- Race
- Income and its distribution
- Social Safety Net
- Social Exclusion (Raphael, 2009; Mikonnen & Raphael, 2010)

These social determinants of health are seen as key contributors to the existence of health inequalities and health inequities. While not all health inequalities are avoidable and preventable, such as biological factors, some of them emerge as a result of a different experience in society. Gaps in population health refer to the absolute and relative differences in the health status between the most and least advantaged groups in a population (Canadian Institute for Health Information, 2004). Health inequities are systematic differences in one or more aspects of health across socially-, demographically-, or geographically-defined populations or population subgroups. These population health differences are unnecessary, avoidable, and unjust (Whitehead, 1992; Gardner & Ticoll, 2007). Unlike the health gaps that result from biological factors, health inequities are the product of social inequity and disadvantage, and are created in a social context; therefore, they are potentially remediable by policy changes (International Society for Equity in Health, 2011).

Braveman suggests expanding this definition of health inequities and acknowledges the cumulative effects of health disparities. He states that health disparities are the types of differences in health in which groups that are disadvantaged have a consistent and systematic experience of increased health risk. Those who are consistently marginalized and disadvantaged—such as people with low incomes, those with lower education, or racial/ethnic minorities—experience poor health outcomes, which in turn put them even further behind those who have a health advantage (Braveman, 2009).

"If you live in a world of silos then you see low income, poor health and high medical costs as three different problems...."

"But once you start connecting the dots, you see that they are all parts of a vicious cycle: poor people have more health problems, they need more medical services, they can't afford them so they cut back on medications or diagnostic tests, or they pay for them by cutting back on other things like nutritional foods or warm clothing for themselves and their children, which leads to more illness and lost time at work, which results in lost income and jobs, which creates more poverty...

"We have to find innovative and sustainable solutions that confront root problems. It's more sensible, more effective and in the long-run cost effective." (Romanow, Hon. R., 75)
Low Income
Paid employment and benefits contribute to the health and well-being of individuals and their families, reduced likelihood of physical and mental illness, and increased life expectancy. These contributions also extend to youth and their employment experience (Public Health Agency of Canada, 2008).

Children who live in low income households are more likely to have a range of health problems throughout their life, even if their socioeconomic status (SES) changes later in life (Ontario Physicians Poverty Work Group, 2008).

People with lower SES use health services more frequently and are more often and more seriously sick or injured. A Public Health Agency of Canada discussion paper on reducing health inequities states that:

"People in the lowest quintile of income groups use approximately twice as much in the way of health care services as those in the highest quintile. On the basis of an estimation of health care resources used by Canadian households, approximately 20% of total health care spending may be attributable to these disparities." (Public Health Agency of Canada, 2004)

A large number of reports confirm that low income and low SES at the individual and community levels are associated with a higher prevalence of being overweight or obesity, poor diet, and inadequate physical activity among children. Moreover, a series of longitudinal studies confirm a consistent inverse relationship between low SES in childhood and being overweight or obese as adults (Crawford, David and Jeffery, Robert (Eds.), 2005). The negative outcomes are particularly strong for people living in poor neighbourhoods, and are more so than for those who have a low SES but live in a neighbourhood with higher than average income levels (Braveman, 2009).

The Wellesley Institute Study “Poverty is Making Us Sick” offered a comparison between the highest and lowest income quintiles among Canadians and found that the lowest quintile had double the rates of diabetes and heart disease than those in the highest one. Those in the lowest quintile were 60%
more likely to have two or more chronic conditions, four times more likely to live with disability, and three times less likely to have additional health and dental coverage (Ontario Physicians Poverty Work Group, 2008).

Even when controlling for variables such as education, disability, smoking, and physical activity, household income and presence of social assistance income continue to be associated with higher rates of most chronic diseases. The discrepancy is also visible in the uptake of screening services. For example, when comparing low income and high income women over the age of 40, those with low incomes are half as likely to have ever had screening tests such as a Pap test, breast exam, or mammogram. Despite having a greater need for health care support, social assistance recipients are less likely to have a stable health care practitioner, tend to see more general practitioners, and have fewer contacts with specialists in comparison to those who are not (Community Social Planning Council of Toronto, University of Toronto Social Assistance in the New Economy Project & Wellsley Institute, 2009).

**Low Income and Hospitalizations**

A Canadian Population Health Initiative report examined the distribution of age-standardized hospitalization rates for a number of acute and chronic conditions in relation to the SES in 15 urban areas in Canada. The study analyzed 12 hospitalization indicators: ambulatory care sensitive conditions (ACSC), asthma, anxiety disorders, affective disorders, chronic obstructive pulmonary disease (COPD), diabetes, injuries, unintentional falls, injuries in children, mental health, substance-related disorders, and low birth weight rates. The study found statistically significant differences within each of the twelve indicators when comparing rates for people in low, average, and high SES areas. Of all the differences, the most significant were found for mental health related disorders, where the difference ranged from 256 per 100,000 people in high SES areas to 596 per 100,000 people in low SES areas. The differences were most evident for substance-related disorders, COPD, diabetes, mental health, and ACSC, where the rates for people from low SES areas were between 2 to 3.5 times higher than the rates for those from high SES areas (Canadian Institute for Health Information, Canadian Population Health Initiative, 2008). Figure 5 displays the age-standardized hospitalization rate (per 100,000 population) by socioeconomic status group.
Figure 5 – Age-standardized hospitalization rate (per 100,000 population) by socioeconomic status group. Adapted from *Reducing Gaps in Health: A Focus on Socioeconomic Status in Urban Canada, CIHI, 2008*

The same study analyzed self-reported health indicators from the Canadian Community Health Survey, which include: self-rated health, physical inactivity, smoking, heavy alcohol drinking, overweight or obesity, a group of risk factors (which include self-reported physical inactivity, body mass index, smoking and or alcohol intake), influenza immunization for people 65 and over, and activity limitation for people 65 and over. The study found statistically significant differences between the three SES groups in all but one indicator: self-reported overweight and obesity. The highest differences were found in self-reported smoking and risk factors: 1.8 and 1.5 times higher, respectively, among those in low SES areas (Canadian Institute for Health Information, Canadian Population Health Initiative, 2008). However, other literature sources state that in 2007 self-reported prevalence of diabetes was highest among adults in low income households (8% in households with less than $20,000) compared to 4% in those with income over $60,000. This difference was also visible in health care related to diabetes, where uptake of the standard four methods of testing was 21% in the lowest household income group vs. 42% in the highest (Canadian Institute for Health Information, 2009b).
In the Canadian context, the rates of overall hospitalizations for injuries are about 1.3 times higher in the least affluent neighbourhoods compared to the most affluent ones (Canadian Institute for Health Information, 2010b).

At a broader level, hospitalization disparities for health conditions of males and females for 33 Census Metropolitan Areas combined indicate a clear relationship with SES: the lower the SES, the higher the rate of hospitalization. In addition, "for both males and females, 33% to 40% of hospitalization rates for ambulatory care sensitive conditions and mental illness are estimated to be excess rates associated with lower socioeconomic status groups" (Canadian Institute for Health Information, 2010a).

The Canadian Institute for Health Information, reporting data from thirteen Canadian cities, states that individuals from lower SES neighbourhoods are almost twice as likely as those from higher SES neighbourhoods to be hospitalized for depression (Canadian Institute for Health Information, 2009a).

**Low Income and the Physical Environment**

The physical environment of low SES neighbourhoods also affects residents' health. The Canadian Population Health Initiative report on Urban Physical Environment and Health Inequalities found that Canadians living in lower SES areas are three times more likely to live within one kilometre of a pollution-emitting facility than those who live in higher SES areas. For residents of low SES areas, rates of hospitalization for respiratory and circulatory diseases tend to be higher than rates for residents who live further away from a pollution-emitting facility (Canadian Institute for Health Information, 2011). Also, knowing that access to cooler spaces and green spaces can mitigate the effects of extreme heat, the same report expresses concern that areas of larger urban environments with lower SES are more likely to experience higher temperatures and less likely to have green space (Canadian Institute for Health Information, 2011).

A 2007 report of the Institute for Clinical and Evaluative Sciences (ICES) on Diabetes in Toronto revealed that Toronto neighbourhoods with high population density, low income, and high rates of immigrant population have high diabetes rates. These populations also spend a longer time traveling to stores that sell fresh fruits and vegetables, and have less access to convenience stores. However, the report states that the "activity-friendliness" of a community is one of the mediating factors for low income communities when it comes to diabetes. Individuals with low incomes who are generally at high-risk and live in the areas of Toronto that are more activity-friendly had lower than predicted diabetes rates than those low income individuals who live in the less activity-friendly communities. This association also holds true for 'mixed use' neighbourhoods, which are those that are conducive to

---

2 “Total excess hospitalization rate is the sum of all differences in hospitalization rates between the highest socioeconomic status group and each lower group” (Canadian Institute for Health Information, 2010a).
walking and other active forms of transportation used to access retail and commercial services and other amenities (Glazier, Booth, Gozdyra, Creatore, & Tynan, 2007).

**Low Income and Intersectionality**

For certain populations, low income intersects with a number of other socio-demographic disadvantages, which creates even greater health vulnerability, social exclusion, and additional disadvantages. A good example of this effect is seen in some immigrant and Aboriginal populations that experience higher degrees of socio-demographic and economic disadvantage, translating to a greater overall health disadvantage. For example, recent immigrants from non-European Countries across Canada are twice as likely as Canadian-born individuals to report deterioration in health over an eight-year period, even though they arrived in Canada with a health advantage over the Canadian-born population (Canadian Institute for Health Information, 2004). One of the most striking examples of such a compound effect of multiple socio-demographic disadvantages—or intersectionality of social determinants of health—is seen in the First Nations and Inuit people, whose life expectancy is five to ten years less than Canadians as a whole (Butler-Jones, 2008). The Chief Public Health Officer of Canada states that children who live in poverty, live in lone parent families, are recent immigrants, and are of Aboriginal origin are priority populations and need to be the focus of poverty reduction policies and other interventions (Butler-Jones, 2008).

**Early Child Development**

Early childhood development is negatively impacted by growing up in an unsupportive and neglectful social environment, which creates problems in social adaptation, school success, and numerous health problems in later life, including various chronic diseases, heart disease, substance abuse, and mental health difficulties (Heisz, 2007). Children need a safe, supportive environment, as well as a warm, nurturing relationship with their primary caregivers, to be able to meet their full potential. Growing up in a neglectful, unsafe, or abusive environment can negatively affect brain development. Environmental conditions can subsequently impact social, emotional, physical, cognitive, and/or behavioral development. Parents also need supportive neighbourhoods and communities to help them fulfill their critical role as parents (Hon. McCain, Mustard & Shanker, 2007).
The association between SES and health outcomes begins before birth and continues throughout the lifetime. Teen pregnancy rate is a predictor of poor health outcomes for both pregnant teens and their children. For teenage women, it is a predictor of various social, educational and employment barriers. For babies of teen mothers, there is an increased risk of low birth weight and pre-term birth, which leads to developmental challenges. In Ontario, the pregnancy rate for women aged 15 to 19 years is 25.7 in 1,000 females.

The Canadian Council on Social Development used the National Longitudinal Survey of Children and Youth to examine the negative effects that poverty has on children and youth. The findings include the following conclusions:

- "Children in low-income families are "twice as likely to be living in poorly functioning families as are children in high-income families."
- "Nearly 35 per cent of children in low-income families live in substandard housing, compared to 15 per cent of children in high-income families."
- "More than one-quarter of children in low-income families live in problem neighbourhoods, compared to one-tenth of children in high-income families."
- "Nearly 40 per cent of children living in low-income families demonstrate high levels of indirect aggression (such as starting fights with their peers or family members), compared to 29 per cent of children in families with incomes of $30,000 or more."
- "Children in low-income families are over two and a half times more likely than children in high-income families to have a problem with one or more basic abilities such as vision, hearing, speech or mobility."
- "More than 35 per cent of children in low-income families exhibit delayed vocabulary development, compared to around 10 per cent of children in higher-income families."
- "Almost three-quarters of children in low-income families rarely participate in organized sports, compared to one-quarter of children in high-income families" (Ross & Roberts, 2011).

Access to basic necessities, including food, quality housing, and other resources such as child care and recreational opportunities, contributes to healthy child development. Children who live in low income
families are deprived in many of these aspects, and the effects remain throughout their lifetime (Ontario Ministry of Health and Long-Term Care, 2009a). In Canada, 11.7% of children live in poverty (Butler-Jones, 2008).

According to Campaign 2000, a public education movement focusing on poverty, one in ten children in Canada lives in poverty, and one in three of those children living with low incomes have families in which at least one parent has full time employment (Campaign 2000, 2010). Babies who are born and grow up in low income families are more likely to be pre-term, have low birth weights, experience unintentional injury in childhood, and experience or witness abuse or neglect (Telford, 2011).

**Immigrants**

The poverty rate among new immigrants is 19%, the second highest rate after lone parent families (26%) (Butler-Jones, 2008). For recent immigrants who have been in Canada for less than 5 years, the poverty rate based on the Low Income Cut Off measure\(^3\) is three times higher (30.2% compared to 10.2%) than the Canadian-born population (Region of Waterloo Public Health, 2010a). According to the 2006 Census, the unemployment rate of new immigrants is double the rate for Canadian-born persons and established immigrants (11% vs. 5%). This finding is particularly troubling given that in 2006, 70% of recent immigrants had a bachelor's degree or higher, compared to 40% among established immigrants and 27% among non-immigrant population. In addition, recent immigrants who have less than a bachelor's degree have a 41% lower income than their

---

\(^3\) "Low income cut-offs (LICOs) are established using data from the Survey of Household Spending. They convey the income level at which a family may be in straitened circumstances because it has to spend a greater proportion of its income on necessities than the average family of similar size. Specifically, the threshold is defined as the income below which a family is likely to spend 20 percentage points more of its income on food, shelter and clothing than the average family. There are separate cut-offs for seven sizes of family - from unattached individuals to families of seven or more persons - and for five community sizes - from rural areas to urban areas with a population of more than 500,000." (Statistics Canada, 2010)
counterparts who are Canadian-born, and those with bachelor's degrees earn 45% less than their Canadian-born counterparts (Workforce Planning Board of Waterloo, Wellington and Dufferin, 2009).

The evidence of the healthy immigrant effect that was originally ascribed to the pre-selection process has been questioned lately and is attributed to self-perceived health rather than other sources of evidence (Region of Waterloo Public Health, 2010a). With a great deal of variability depending on the region of origin, some immigrants face higher rates of infectious diseases, chronic disease including some forms of cancer, and stress disorders (Greenaway, 2008).

**Visible Minorities**

Most of the demographic growth for Canada overall and its provinces and territories is predicted to come from visible minority populations, where one in five Canadians will be part of a visible minority group by 2017 (Statistics Canada, 2005). Currently people within these visible minority groups are experiencing poverty at a much higher rate than the rest of the population. In Toronto, the poverty rate among people considered visible minorities is double the poverty rate of the rest of the population (40.7% vs. 19.8%) (Reitz, 2005).

**Rural Communities**

Several pan-Canadian data sources, such as the Canadian Annual Mortality Database, the Canadian Cancer Registry, and the Canadian Community Health Survey reveal that rural areas are at a health disadvantage for many measures examined. Health disadvantage refers to higher mortality rates—particularly for circulatory diseases, smoking, obesity, injuries, and suicide—a higher proportion of low income households, and a shorter life expectancy for men (Canadian Institute for Health Information, 2006). Mortality rates vary by community size. They are lowest in the largest metropolitan areas (over 1,000,000), followed by smaller areas (500,000 to 1,000,000), and a bit higher still in smaller urban areas and rural areas. These rates are mediated by proximity to larger metropolitan areas—that is, rural communities that are closer to larger metropolitan areas have similar mortality rates to those in larger metropolitan areas, while mortality rates are much higher in areas that have little or no metropolitan influence (Statistics Canada, 2008).

Rural settings with a higher prevalence of smoking, lower consumption of fruits and vegetables, and higher proportion of overweight and obese individuals indicate the need for a different approach to promoting health and well-being. Conventional urban-based disease prevention and health promotion strategies may, however, not be as effective in rural settings (Canadian Institute for Health Information, 2006).
Education

The higher and the more successful the education experience is for children and adults, the better their health will be (Public Health Agency of Canada, 2008). This finding also applies to youth. Those youth with post-secondary education are more likely to be employed than those who are not, and employment contributes to better health (Canadian Council on Social Development, 2006).

The highest mortality rates in Canada are found among people who did not complete secondary school, those who are unemployed or who are not seeking jobs, and those who have unskilled jobs and are consequently living on low incomes (Population Health Promotion Expert Group: Working Group on Population Health, 2009).

Because of the impact that individual educational attainment has on determining further schooling, employment, health, and social outcomes, the Ministry of Children and Youth Services has identified the mandate “Every Young Person Graduates from Secondary School” as one of its five strategic goals. Quality early learning and child development services provide children with the skills, capabilities and knowledge required for success in school (Ministry of Children and Youth Services, 2008).

In making the transition to school, and throughout their educational pathways, many children require more than just academic support to succeed. Services such as mental health and specialized support are crucial in helping many young people achieve success in the classroom (Ministry of Children and Youth Services, 2008). The same applies to youth. Youth with post-secondary education are more likely to be employed than those without (Canadian Council on Social Development, 2006). Children and youth involved with the youth justice services and child protection systems can face significant challenges in school and often require additional support beyond that provided by the education system.

Social and Community Support

People supported by their family, friends, and communities experience better health (Public Health Agency of Canada, 2008). Barriers to health may include the experience of discrimination, stigmatization, and marginalization, and a lack of culturally-appropriate resources and services. Inuit, Métis, and First Nations communities are particularly vulnerable to these circumstances, and as a result, experience greater levels of poverty (17%) and related negative consequences (Ontario Physicians Poverty Work Group, 2008; Butler-Jones, 2008) compared to the general Canadian population. On average, Canadian Aboriginal men live 7 years less and Canadian Aboriginal women live 5 years less than the rest of Canadians (Statistics Canada, 2008).
New immigrant children and their families are also faced with multiple cultural, social, and economic challenges including language barriers (Canadian Council on Social Development, 2006; Health Council of Canada, 2006).

Lack of social connectedness and low income also affect Canadian rural communities. The more remote the community is, the more likely it is that the residents experience a variety of barriers—such as lack of transportation, suitable housing, and social connectedness—and are less healthy overall (Standing Senate Committee on Agriculture and Forestry, 2008).

**Housing**

Affordable and acceptable housing (housing that costs less than 30% of the household’s before tax income) is another critical social determinant of health. Affordability of suitable housing is directly related to income. Consequences related to the inability to afford a suitable housing situation include food deprivation or substandard housing conditions, where either or both have direct negative health consequences (Public Health Agency of Canada, 2008). According to the 2008 Chief Public Health Officer's Report, 13.7% of Canadians live in an unaffordable and/or unacceptable housing situation. Inadequate housing impacts health by contributing to the inability to afford other basic necessities in life and by being exposed to unhealthy conditions, such as substandard and harmful environmental conditions and overcrowding. Finally, homelessness is both a product and contributor of poor health (Butler-Jones, 2008). One-third of homeless people in Canada are youth between the ages of 16 and 24 years (Youth Works, 2011).

**The Cost of Health Inequities**

An increasing amount of evidence has been produced in the last few years providing health care cost projections and estimates in support of advocacy for a strong multi-sectoral policy on social determinants of health.

In the European Union one study looked at various health losses (health care cost, cost of social security support, losses to Gross Domestic Product (GDP), and the cost of total loss in welfare) and determined that over 700,000 deaths per year and 33 million cases of ill health could be attributed to social inequities. This further translates into 20% of the total cost of healthcare, 15% of the cost of social security benefits, and a 1.4% loss to the GDP every year. The overall monetary impact was estimated to be €980 billion per year, or 9.4% of the GDP (Mackenbach, Meerdng, & Kunst, 2011).

An analysis of the economic cost of poverty in Ontario states that, generally, total health care spending declines as income increases. The study determined that the lowest income quintile accounted for 30.9% of overall health expenditures, the second quintile for 24.2%, and the middle quintile for 16.2%. Using these initial findings, a scenario was created to project the effects on health care costs by raising
the income of those in the lowest quintile to the next income level. This scenario resulted in an anticipated cost reduction of about 2.9 billion for the province of Ontario (Laurie, 2008).

A very recent study conducted by the Public Health Agency of Canada looked at how health care costs are distributed across five income groups. Even though the study has not managed to differentiate between need and access, the analysis revealed a negative socioeconomic gradient in health care cost for the three examined components: physician consultations, acute inpatient hospitalization, and use of prescribed medication. The results suggest that more than half of all health care expenditures are linked to 20% of Canadians—those who live with the lowest income. The study estimates that the direct cost of health inequities is $6.2 billion, which is 14% of the total estimated health cost. The estimated difference in cost between 20% of the population with the lowest income and 20% with the highest is approximately $3.7 billion, or 60% of the estimated burden. The study recommends looking further at potential savings that may be achieved by addressing health inequities (Milliken, Long, & Jacobsen, 2011).

Local Picture of the WWLHIN – Social Determinants of Health and Health Outcomes

This section presents a local picture of the social determinants of health (SDOH) and health outcomes to identify priority neighbourhoods in the WWLHIN. Please refer to the Technical Report for information on methodology, a comprehensive documentation of findings for all indicators, a discussion of priority neighbourhoods, and limitations of the analysis.

Table 2 outlines eight main indicators (in bold) of poverty and healthy child development, and health outcome indicators. The findings of each indicator will be presented as follows:

- **Key findings of indicator(s) used in ranking of neighbourhoods**, which provides a general picture of each public health unit (PHU) area for the indicators that were used to identify priority neighbourhoods in the WWLHIN.
- **Key findings of additional indicator(s) or key findings of indicators**, which provides information of relevant indicators that were not used to identify priority neighbourhoods.
- **Findings of figure** (i.e., map), which provides findings at a neighbourhood level of SDOH indicators used to identify priority neighbourhoods in the WWLHIN, or health outcomes indicators used to examine health care utilization of the identified priority neighbourhoods.

Please note that PHU areas may not be equally represented in the “key findings” for each of the indicators, as most of the information was obtained from pre-existing reports, which may not have the same degree of reporting or the same level of details.
Table 2 – Indicators of poverty and healthy child development†

<table>
<thead>
<tr>
<th>SDOH and Health Outcome Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Income</strong></td>
</tr>
<tr>
<td>• Individual and household income</td>
</tr>
<tr>
<td>• Low income status</td>
</tr>
<tr>
<td>• Children living in low income households</td>
</tr>
<tr>
<td>• Government transfer payments</td>
</tr>
<tr>
<td>• Employment status</td>
</tr>
<tr>
<td><strong>Education</strong></td>
</tr>
<tr>
<td>• Without completed high school</td>
</tr>
<tr>
<td>• High school and higher education levels</td>
</tr>
<tr>
<td>• Education level of special population groups</td>
</tr>
<tr>
<td><strong>Social and Community Support</strong></td>
</tr>
<tr>
<td>• Family and marital status</td>
</tr>
<tr>
<td>• Lone parent families</td>
</tr>
<tr>
<td>• Food security*</td>
</tr>
<tr>
<td>• Health services*</td>
</tr>
<tr>
<td><strong>Housing</strong></td>
</tr>
<tr>
<td>• Housing affordability</td>
</tr>
<tr>
<td>• Housing ownership</td>
</tr>
<tr>
<td><strong>Early Child Development</strong></td>
</tr>
<tr>
<td>• Early Development Instrument (EDI)*</td>
</tr>
<tr>
<td>• Child care*</td>
</tr>
<tr>
<td>• Low birth weight*</td>
</tr>
<tr>
<td>• Breastfeeding*</td>
</tr>
<tr>
<td><strong>Immigration</strong></td>
</tr>
<tr>
<td>• Immigrant population</td>
</tr>
<tr>
<td>• Recent immigrant population</td>
</tr>
<tr>
<td>• Visible minority population</td>
</tr>
<tr>
<td>• Aboriginal population</td>
</tr>
<tr>
<td><strong>Health Outcomes</strong></td>
</tr>
<tr>
<td>• Hospitalization rates for cardiovascular disease</td>
</tr>
<tr>
<td>• Hospitalization rates for injuries</td>
</tr>
<tr>
<td>• Hospitalization rates for diabetes</td>
</tr>
<tr>
<td>• Mortality rates for lung cancer</td>
</tr>
</tbody>
</table>

†Original source for all SDOH indicators was the 2006 Census data provided by Statistics Canada to the MOHLTC and PHUs. Health outcome data were provided by the MOHLTC. Please refer to the Technical Report for more information.

*Data not available from the 2006 Census

Indicators of Income

Key Findings of Indicators Used in Ranking of Neighbourhoods

**Low Income Status**

• In 2005, the proportion of families that had low income *before tax* in Waterloo Region (7.5%) and Wellington County (6.2%) was lower than that of Ontario (11.7%) and Canada (8.4%) (Ontario Trillium Foundation, 2008).

• In 2005, 6.4% of the population in Wellington County, 6.4% in the Municipality of West Grey, and 5.7% in the Municipality of Southgate was living with low income *after tax*, which was lower than the prevalence rate in Ontario (11.1%) (Glenda Clarke and Associates, 2010; Wellington-Dufferin-Guelph Public Health, 2010).

*See Figure 6 for the proportion of persons in private households with low income after tax, by neighbourhood in the WWLHIN.*

**Children Living in Low Income Households**

• Waterloo Region had a higher proportion of children (aged 6 years and under) living in low income private households compared to other areas of the WWLHIN.

• In 2006, 12.2% of children/youth aged 18 years and under in Waterloo Region were living in a private home with low income (Woolwich Community Health Centre, 2010).
• In 2005, 7.0% of children/youth aged 18 years and under in Wellington County were living with low income (Wellington-Dufferin-Guelph Public Health, 2010).

• In 2006, 5.7% of persons aged 18 years and under in the Municipality of Southgate and 6.4% in the entire Municipality of West Grey were living with low income after tax (Glenda Clarke and Associates, 2010).

See Figure 7 for the proportion of children aged 6 years and under in private households with low income after tax, by neighbourhood in the WWLHIN.

Government Transfer Payments (GTP)†

• In 2006, in Waterloo Region, GTPs represented an average of 10.2% of the total income for all families (Region of Waterloo Public Health, 2010b), which was lower than the rate for Ontario (11.2%) (Region of Waterloo Public Health, 2010b).

• In 2006, in Wellington County, 8.5% of total population income was from GTPs, which was lower than the Ontario rate of 9.8% (Glenda Clarke and Associates, 2010; Wellington-Dufferin-Guelph Public Health, 2010).

• In 2006, 12.8% of income was from GTPs in the Municipality of Southgate compared to 14.2% in the Municipality of West Grey (Glenda Clarke and Associates, 2010); both were higher than the Ontario rate of 9.8% (Glenda Clarke and Associates, 2010; Wellington-Dufferin-Guelph Public Health, 2010).

See Figure 8 for the proportion of average family income from government transfer payments, by neighbourhood in the WWLHIN.

Employment Status

• In 2006, the unemployment rates in the three public health unit areas were lower than the provincial rate (6.4%) (Ontario Trillium Foundation, 2008).

• In 2006, females in Waterloo Region and Wellington County had a higher unemployment rate than males (Ontario Trillium Foundation, 2008).

• The unemployment rate among recent immigrants (i.e. immigrants arriving between 2001 and 2006) in Waterloo Region was two times greater (11%) than the unemployment rate of the Canadian-born population (5%) or established immigrants (5%) (Workforce Planning Board of Waterloo, Wellington and Dufferin, 2009).

See Figure 9 for the unemployment rate for individuals in the labour force aged 25 years and older, by neighbourhood in the WWLHIN.

---

† GTPs include, but are not limited to, social assistance, child tax credits, unemployment insurance, goods and services tax credits, and old age security pensions.
Key Findings of Additional Indicators

Individual and Household Income

- In the WWLHIN, males had higher income levels than females on average (Ontario Trillium Foundation, 2008; Wonnacott & Ferguson, 2011).
- In 2005, the overall average private household income before tax in both Waterloo Region ($78,727) and Wellington County ($80,079) was higher than that of Ontario ($77,967) (Ontario Trillium Foundation, 2008).
- In 2005, the average private household income after tax was similar between Waterloo Region and Wellington County. However, the Municipality of Southgate and the Municipality of West Grey (i.e., the area that is within the WWLHIN) showed a slightly higher proportion of households with an average after-tax income between $20,000 to $49,999 and $60,000 to $69,999, but a lower proportion between $80,000 to $100,000 and over average after-tax income brackets.

*Please refer to pages 21 to 30 of the Technical Report for a more in-depth discussion of the indicators of income.*
Figure 6 – Proportion of persons in private households with low income after tax, by neighbourhood, WWLHIN, 2006

Findings of Figure 6
Seven neighbourhoods in the WWLHIN had high proportions (i.e., in the upper quartile) of persons in private households with low income. These neighbourhoods included Columbia/Lakeshore (17.7%), Victoria Hills/Cherry Hill/KW Hospital (16.7%), Downtown Kitchener and Area (15.9%), Onward Willow (13.9%), Vanier/Rockway (13.6%), Westmount (12.4%), and Downtown/Sunny Acres/Old University (12.2%).
Findings of Figure 7
Three neighbourhoods had a higher proportion of children living in low income households. These included Downtown Kitchener and Area (27.7%), Vanier/Rockway (25.7%), and Victoria Hills/Cherry Hill/KW Hospital (23.9%). Columbia/Lakeshore, Westmount, South East Galt, and Alpine Laurentian had proportions between 16.5% and 18.8%. All other neighbourhoods had proportions of 15.4% or less.
Findings of Figure 8
Approximately one-quarter of neighbourhoods in the WWLHIN received government transfer payments that represented more than 10% of the total family income. The top six neighbourhoods included Vanier/Rockway, Onward Willow, Victoria Hills/Cherry Hill/KW Hospital, Downtown Kitchener and Area, Exhibition Park, and Galt City Centre/South Galt, which received government transfer payments representing more than 12% of the total family income.
Findings of Figure 9
There was a higher rate of unemployment occurring in the urban areas. Six neighbourhoods showed an unemployment rate of over 5%. They included Onward Willow, Victoria Hills/Cherry Hill/KW Hospital, Columbia/Lakeshore, Downtown Kitchener and Area, Vanier Rockway, and West Willow Woods.
Indicators of Education

Key Findings of Indicators Used in Ranking of Neighbourhoods

Population without Completed High School Education

- In 2006, 14.8% of adults aged 25 to 64 years in Wellington County and 15.6% in Waterloo Region did not have a high school diploma, which is comparable to the proportion in Ontario (13.6%) (Ontario Trillium Foundation, 2008; Region of Waterloo, n.d. b; Tardiff, 2009; Wellington-Dufferin-Guelph Public Health, 2010; Woolwich Community Health Centre, 2010). However, higher proportions of adults with no high school diploma were found in the northern rural areas of the WWLHIN.
- In 2006, one in five adults over the age of 25 did not complete high school in Grey Bruce (Wonnacott & Ferguson, 2011).

See Figure 10 for the proportion of the population aged 25 to 64 years without completed high school education by neighbourhood in the WWLHIN.

Key Findings of Additional Indicators

Population with High School and Higher Education Levels

- In 2006, in all of Waterloo Region, 58.1% of adults between 25 and 64 years of age completed post-secondary education, which was higher than the proportion in Wellesley (41.4%), Woolwich (53.4%), and Wilmot (57.6%) townships (Woolwich Community Health Centre, 2010).
- In Wellington County, 58.5% of adults between 25 and 64 years of age completed post-secondary education.
- In the municipalities of Southgate and West Grey (i.e., the portion that is part of the WWLHIN), 43.1% of adults between 25 and 64 years of age completed post-secondary education.

Education Level in Special Population Groups

- Many Low German speaking Mennonites have low levels of education, as most children leave school by their fourteenth birthday (Woolwich Community Health Centre, 2010).
- Recent immigrants often have higher education levels than the Canadian-born population (Workforce Planning Board of Waterloo, Wellington and Dufferin, 2009).

*Please refer to pages 31 to 35 of the Technical Report for a more in-depth discussion of the indicators of education.
Findings of Figure 10
The rural areas of Wellesley Rural North (64.9%), Township of Mapleton (38.1%), Woolwich Rural North (35.8%), Wellesley Rural South (27.7%), and the Township of North Wellington (26.1%) had higher proportions of the population without a high school diploma. This may in part be related to the sizeable Low German speaking Mennonite populations residing in these areas (Bennett, 2009; Woolwich Community Health Centre, 2010).
Indicators of Social and Community Support

Key Findings of Indicators Used in Ranking of Neighbourhoods

Lone Parent Families

- In the WWLHIN, more lone parent families were headed by a lone female parent (11%) compared to a lone male parent (3%).
- The rate of lone parent families for the Municipality of Southgate and the portion of the Municipality of West Grey that is part of the WWLHIN was 9.4%, which was lower than Waterloo Region (14.5%) and Wellington County (12.6%).
- In the townships in Waterloo Region, 5.5% of families in Wellesley Township were lone parent families, which was lower than the proportion of lone parent families in Wilmot (8.5%) and Woolwich (8.4%) townships (Woolwich Community Health Centre, 2010).

See Figure 11 for the proportion of families that were lone parent families, by neighbourhood in the WWLHIN.

Key Findings of Additional Indicators

Family and Marital Status

- The three public health unit areas of the WWLHIN showed similar trends for marital status in 2006; approximately 55% of the population were married, while 30% were single, and 10% were divorced.

Food Security

- In Waterloo Region, 45% of children accessed food banks (Food Bank of Waterloo Region, 2008, as cited in Tardiff, 2009).
- In Wellington County, 29% of children aged 14 years and under accessed food banks (United Way, 2007, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009).

Health Services

- More emergency department visits were seen in rural areas of the WWLHIN between 2007 and 2009, which may reflect the unique organization of health services in rural communities. For example, emergency departments are often staffed by physicians who are also family practitioners in the same community. Therefore, some patients of these family physicians are seen in the emergency department, which is being captured as an ED visit.

*Please refer to pages 36 to 43 of the Technical Report for a more in-depth discussion of the indicators of social and community support.
Findings of Figure 11
Onward Willow (23.9%), Victoria Hills/Cherry Hill/KW Hospital (23.2%), Alpine Laurentian (22.2%), Vanier/Rockway (22.1%), Downtown Kitchener and Area (21.1%), and Two Rivers St George’s Park (20.1%) had over 20% of families that were headed by lone parents. Wellesley Rural North, Township of Mapleton, Wellesley Village, and Hidden Valley/Pioneer each had a proportion of less than 5% of families that were headed by lone parents.
Indicators of Housing

Key Findings of Indicators Used in Ranking of Neighbourhoods

**Housing Affordability**

- In 2006, in the Kitchener-Cambridge-Waterloo Census Metropolitan Area (CMA)\(^5\), 39.2% of tenant households spent 30% or more of their gross household income on rent compared to 41.2% in the Guelph CMA (Statistics Canada, 2011).
- In 2006, 20% of tenant households in Wellesley Township, 25% in Wilmot Township, and 29% in Woolwich Township spent more than 30% of their income on major household payments (Woolwich Community Health Centre, 2010).
- In 2006, in the Kitchener-Cambridge-Waterloo CMA, 16.7% of homeowners spent 30% or more of their household income on major payments compared to 18.3% in the Guelph CMA (Statistics Canada, 2011).
- In 2006, 13% of homeowners in each of the townships of Wellesley, Wilmot, and Woolwich on average spent 30% or more of their household income on major housing payments (Woolwich Community Health Centre, 2010).

*See Figure 12 for the proportion of tenant and owned households who spent 30% or more of their income on housing costs by neighbourhood in the WWLHIN.*

**Key Findings of Additional Indicators**

**Home Ownership**

- The urban centres of Kitchener, Waterloo, Cambridge, and Guelph had neighbourhoods with higher proportions of dwellings that were not owned compared to rural areas of the WWLHIN.
- A greater proportion of residents in Waterloo Region (29.3%) did not own their own home (Tardiff, 2009) compared to 11.9% in the Municipality of Southgate (Glenda Clarke and Associates, 2010) and less than 10% in the portion of the Municipality of West Grey that is within the WWLHIN.
- The rate of homeownership in Waterloo Region increased by 16% between 2001 and 2006, even though housing prices had risen (Region of Waterloo, n.d. a).

*Please refer to pages 44 to 47 of the Technical Report for a more in-depth discussion of the indicators of housing.*

---

\(^5\) Census Metropolitan Area (CMA) has a minimum total population of 100,000, where 50,000 or more of the population resides in the urban core that consists of one or more adjacent municipalities.
Figure 12 - Proportion of tenant and owned households that spent 30% or more of their income on housing costs, by neighbourhood, WWLHIN, 2006

Findings of Figure 12
Just over half the neighbourhoods in the WWLHIN had 20% or more of households spending 30% or more of their income on housing. All of these neighbourhoods are located in urban areas. Columbia/Lakeshore, Victoria Hills/Cherry Hill/KW Hospital, Downtown Kitchener and Area, and Downtown/Sunny Acres/Old University, each had over 30% of households that spent 30% or more of their income on housing costs.
Indicators of Early Child Development

Key Findings of Indicators

Early Development Instrument (EDI)

- The EDI measures how “ready” children are prepared to learn at school using five domains of development, including physical health and well-being, social competence, emotional maturity, language and cognitive skills, and communication and general knowledge (Tardiff, 2009; Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2011).

- Average EDI scores (with a maximum score of 10) for each of the five domains were slightly different across the three public health unit areas of the WWLHIN, though comparable to the 2003-2006 Ontario baseline scores. Scores ranged from 7.5 to 8.9, with higher scores indicating higher readiness to learn (A. Romagnoli, personal communication, June 28, 2011; Glenda Clarke and Associates, 2010; Tardiff, 2009; Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2011).

- Children who score below the 10th percentile (i.e. bottom 10%) on one or more of the five EDI domains are at a “higher risk” of negative developmental outcomes in that domain (Tardiff, 2009). The proportion of children scoring below the tenth percentile was similar in each EDI domain in Waterloo Region, Wellington County, and the City of Guelph. However, a higher proportion of children in Waterloo Region were below the tenth percentile in physical health and well-being. Data were not available for Grey Bruce (A. Romagnoli, personal communication, June 28, 2011; Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2011).

See Table 3 for proportion of senior kindergarten children who scored below the 10th percentile for each Early Development Instrument domain, by health unit area in the WWLHIN, 2006, 2007.

- Children who score below the 10th percentile (i.e. bottom 10%) in two or more of the five EDI domains is a measure of “vulnerability,” which means that children tend to have more difficulty catching up in school as years pass (Tardiff, 2009; Janus, 2008, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009; Yao & Brown, 2007, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009). Wellington County (excludes children with special needs) and the Region of Waterloo (includes children with special needs) each have neighbourhoods with higher proportions of vulnerable children. Data were not available for Grey Bruce.

See Figure 13 for the proportion of senior kindergarten children who were vulnerable in two or more Early Development Instrument (EDI) domains in Wellington County.

See Figure 14 for the proportion of senior kindergarten children who were vulnerable in two or more Early Development Instrument (EDI) domains in Waterloo Region.
Table 3 - Proportion of senior kindergarten children who scored below the 10th percentile for each Early Development Instrument domain, by health unit area, WWLHIN, 2006, 2007

<table>
<thead>
<tr>
<th>Domain</th>
<th>% below 10th percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Physical Health &amp; Well-Being</td>
</tr>
<tr>
<td></td>
<td>Social Competence</td>
</tr>
<tr>
<td></td>
<td>Emotional Maturity</td>
</tr>
<tr>
<td></td>
<td>Language and Cognitive Development</td>
</tr>
<tr>
<td></td>
<td>Communication and General Knowledge</td>
</tr>
</tbody>
</table>

*Findings exclude children with special needs
**Data not available for Grey Bruce
(Sources: A. Romagnoli, personal communication, June 28, 2011; Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2011)

**Child Care**

- In 2006, in the City of Guelph and the rest of Wellington County, 73% and 75%, respectively, of mothers with children under six years of age were working, compared to 93% and 97% of fathers (Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2011).
- According to the 2007 Kindergarten Parent Survey in Waterloo Region, 71.5% of respondents (mostly women) were working between 10 and 34 hours per week, and 4% reported that their workplace offered child care (Tardiff, 2009).
- In Waterloo Region and Wellington County, child care spaces were limited compared to the number of spaces that were actually needed (Tardiff, 2009; Community Services Team, County of Wellington Child Care Services, 2008, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009).

**Low Birth Weight**

- The rates for low birth weight in Waterloo Region, Wellington County, and Grey Bruce were lower than the rates for Ontario (6.4%) and Canada (6.1%) (Canadian Institute for Health Information, 2009, as cited in Tardiff, 2009; Region of Waterloo Public Health HBHC ISCIS report, 2007, as cited in Tardiff, 2009; Leffley, 2007, as cited in Wonnacott & Ferguson, 2011).

**Breastfeeding**

- In 2007, according to the Healthy Babies Healthy Children Postpartum Assessment in Waterloo Region, 65% of mothers were breastfeeding their infant at time of hospital discharge (Wonnacott & Ferguson, 2011; Region of Waterloo Public Health HBHC ISCIS report, 2007, as cited in Tardiff, 2009).
• In Wellington County (and Dufferin), the 2009 Feeding Choices in Our Community Survey showed that 89% of respondents provided their infants with breast milk in the first two weeks following birth (Wellington-Dufferin-Guelph Public Health, 2009).

• In Grey Bruce, according to the 2007/2008 Canadian Community Health Survey, 86% of mothers initiated breastfeeding, even if only for a short while (McFarland & Leffley, 2010).

*Please refer to pages 48 to 56 of the Technical Report for a more in-depth discussion of the indicators of early childhood development.
Findings from Figure 13

Four neighbourhoods in Wellington County had higher proportions of senior kindergarten children (excluding children with special needs) who were vulnerable (i.e. scoring below the tenth percentile) in two or more EDI domains. They included Minto (25.8%), Two Rivers/St. George’s Park (22.2%), Onward Willow (20.0%), and Brant Waverly (19.8%). All other neighbourhoods had proportions less than 17.4%.
Figure 14 - Proportion of senior kindergarten children who were vulnerable in two or more Early Development Instrument (EDI) domains, Waterloo Region, 2007

Findings of Figure 14
Five neighbourhoods in Waterloo Region had higher proportions of senior kindergarten children (including children with special needs) who were vulnerable (i.e. scoring below the tenth percentile) in two or more EDI domains. They included Victoria Hills/Cherry Hill/KW Hospital (32.2%), North Galt/Elgin Park (31.6%), Vanier/Rockway (28.1%), Bridgeport/Breithaupt/Mount Hope (27.7%), and Downtown Kitchener and Area (27.4%). All other neighbourhoods had proportions less than 27.0%
Indicators of Immigration

Key Findings of Indicators Used in Ranking of Neighbourhoods

**Immigrant Population**

- In 2006, in Waterloo Region, 22.3% of the total population was foreign-born with more of these individuals settling in the cities of Cambridge, Kitchener, and Waterloo rather than rural areas (Ontario Trillium Foundation, 2008; Region of Waterloo, n.d. c).
- In 2006, 17.0% of the population in Wellington County were immigrants (Ontario Trillium Foundation, 2008).
- In 2006, 4.1% of the population in the Municipality of West Grey that is part of the WWLHIN were immigrants compared to 10.2% in the Municipality of Southgate.
- The WWLHIN has a population of Low German speaking Mennonites originating from Mexico. The townships of Mapleton, Wellesley, Wilmot, and Woolwich have large Mennonite populations (Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2011; Woolwich Community Health Centre, 2010).

See Figure 15 for proportion of the population who were immigrants by neighbourhood in the WWLHIN.

**Key Findings of Additional Indicators**

**Recent Immigrant Population**

- Of the total immigrant population in the WWLHIN, 17.6% were recent immigrants (i.e., arrived to the area between 2001 and 2006).
- Of the total immigrant population in Waterloo Region, 16.2% were recent immigrants compared to 13.7% in Wellington County and 3.3% in the municipalities of Southgate and West Grey (i.e., the part that is within the WWLHIN).

**Visible Minority Population**

- In the Kitchener-Cambridge-Waterloo Census Metropolitan Area, 13.8% of the population was a visible minority (Statistics Canada, 2009).
- In 2006, 14% of the population in the City of Guelph was a visible minority compared to 2% in the rest of Wellington County (Wellington-Dufferin-Guelph Public Health, 2011a).
- In Grey Bruce, fewer (less than 2%) visible minorities resided in the municipalities of Southgate and West Grey (Glenda Clarke and Associates, 2010; Wonnacott & Ferguson, 2011).

**Aboriginal Population**

- Neighbourhoods with the highest proportion of Aboriginal people (over 2%) were the Municipality of Southgate and Downtown Kitchener and Area.

*Please refer to pages 57 to 62 of the Technical Report for a more in-depth discussion of the indicators of immigration, Aboriginal population, and visible minorities.*
**Findings of Figure 15**

Five neighbourhoods had greater than 30% of the population who are immigrants, including Highland West (38.6%), Victoria Hills/Cherry Hill/KW Hospital (33.1%), Southwest Kitchener (32.3%), West Waterloo (31.7%), and Vanier/Rockway (30.8%). The portion of the Municipality of West Grey that is part of the WWLHIN and Wellesley Rural North both had less than 5%.
Indicators of Health Outcomes

The four health outcome indicators listed below, in combination with the previously described social determinants of health indicators, can assist in identifying priority neighbourhoods within the WWLHIN that would benefit from interventions to reduce health inequities.

It is important to note that rates for all health outcomes are reported at the neighbourhood level for the WWLHIN area, except for the Municipality of West Grey, where the rates were reported for the entire Municipality (i.e., rates for all of West Grey are being inferred for the small area that is within the WWLHIN). Also, the rates for some neighbourhoods for hospitalization rates for diabetes and mortality rates for lung cancer were suppressed due to low counts. Caution is warranted when comparing rates between neighbourhoods. Please refer to the Technical Report for more details on the methodology and limitations.

Key Findings of Indicators

Hospitalization rates for cardiovascular disease

- Five neighbourhoods in the WWLHIN had hospitalization rates for cardiovascular disease of more than 1500 hospitalizations per 100,000 people on average over three fiscal years, which included St. Jacobs, North Cambridge, Township of North Wellington, Exhibition Park, and Blair.

See Figure 16 for three-year average cardiovascular-related hospitalization rate per 100,000 population, by neighbourhood in the WWLHIN.

Hospitalization rates for injury

- Seven neighbourhoods had hospitalization rates for injury between 800 and 1,255 hospitalizations per 100,000 people on average over three fiscal years. They included Township of North Wellington, Minto, Exhibition Park, Downtown Kitchener and Area, Blair, the Municipality of West Grey, and Brant Waverly.

See Figure 17 for three-year average injury-related hospitalization rate per 100,000 population, by neighbourhood in the WWLHIN.

Hospitalization rates for diabetes

- Three neighbourhoods had hospitalization rates for diabetes close to 200 hospitalizations per 100,000 people on average over three fiscal years, which included Minto, Municipality of West Grey, and Exhibition Park.

See Figure 18 for three-year average diabetes-related hospitalization rate per 100,000 population, by neighbourhood in the WWLHIN.
Mortality rates for lung cancer

- Five neighbourhoods in the WWLHIN had between 75 and 116 deaths related to lung cancer per 100,000 people on average over three calendar years. They included Woolwich Rural East, Minto, Central Preston, Wellington North, and Municipality of West Grey.

See Figure 19 for three-year average lung cancer-related mortality rate per 100,000 population, by neighbourhood in the WWLHIN.
Figure 16 - Three-year average cardiovascular-related hospitalization rate per 100,000 population, by neighbourhood, WWLHIN, 2007-2010

Findings of Figure 16
St. Jacobs had the highest rate of hospitalizations for cardiovascular disease at 1,866 hospitalizations per 100,000 people. Other parts of the WWLHIN had rates over 1500 hospitalizations per 100,000 people, which included North Cambridge (1,759), Township of North Wellington (1,753), Exhibition Park (1,628), and Blair (1,546). Woolwich Rural North, Eastbridge/Lexington, Southwest Kitchener, and Wellesley Rural North had rates of less than 300 hospitalizations per 100,000 people.
Figure 17 - Three-year average injury-related hospitalization rate per 100,000 population, by neighbourhood, WWLHIN, 2007-2010

**Findings for Figure 17**

Township of North Wellington had the highest hospitalization rate for injuries at 1,255 hospitalizations per 100,000 people. Other areas with higher rates included Minto (1,121), Exhibition Park (1,035), Downtown Kitchener and Area (924), Blair (870), Municipality of West Grey (809), and Brant Waverly (800). All other neighbourhoods had a lower rate (less than 800 hospitalizations per 100,000 people) of hospitalization due to injuries.

*Note that the rate for the Municipality of West Grey is presented as a whole rather than the portion of the Municipality of West Grey that is part of the WWLHIN.*

Source: 2006 Census, Statistics Canada; Inpatient Discharges main Table, Discharge Abstract Database (DAD), Ontario Ministry of Health and Long-Term Care, Intellihealth Ontario.
Findings for Figure 18

Parts of the WWLHIN had average rates of diabetes-related hospitalizations close to 200 hospitalizations per 100,000 people, which included Minto, Municipality of West Grey, and Exhibition Park. Baden and West Waterloo had rates of less than 20 hospitalizations per 100,000 people. However, it is important to note that data for 11 neighbourhoods were censored due to low counts.
Figure 19 - Three-year average lung cancer-related mortality rate per 100,000 population, by neighbourhood, WWLHIN, 2007-2010

Findings of Figure 19
The portion of Woolwich Rural East had the highest rate of lung cancer mortality at 116 deaths per 100,000 people. Other parts of the WWLHIN had rates of over 75 deaths per 100,000 people, which included Minto, Central Preston, Wellington North, and Municipality of West Grey. Blair, Hidden Valley/Pioneer Tower, and West Waterloo had no lung cancer-related death over the three calendar years. However, it is important to note that data for 14 neighbourhoods were censored due to low counts.
Local Picture of the WWLHIN - Priority Neighbourhoods

Overall Ranking of Neighbourhoods

Priority neighbourhoods were identified through a system of ranking neighbourhoods according to eight social determinants of health (SDOH) indicators listed in Table 4 below. These SDOH indicators were chosen based on evidence from existing literature that shows these determinants have a direct impact on health. They were also chosen based on evidence from the SDOH data examined in this report, which indicated that these determinants were most likely to vary across neighbourhoods. All 65 neighbourhoods were ranked on each of the eight indicators (two neighbourhoods in the City of Guelph were excluded; please refer to the Technical Report for more details). The indicator ranks were then summed for every neighbourhood. Neighbourhoods appearing in the highest 20% of the overall rank were identified as priority neighbourhoods.

Table 4 – Indicators used in overall ranking of neighbourhoods

<table>
<thead>
<tr>
<th>SDOH Indicators</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>• Low income status</td>
</tr>
<tr>
<td></td>
<td>• Children living in low income households</td>
</tr>
<tr>
<td></td>
<td>• Government transfer payments</td>
</tr>
<tr>
<td></td>
<td>• Employment status</td>
</tr>
<tr>
<td>Education level</td>
<td>• Without completed high school</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Social and Community Support</td>
<td>• Lone parent families</td>
</tr>
<tr>
<td>Housing</td>
<td>• Housing affordability</td>
</tr>
<tr>
<td>Immigration</td>
<td>• Immigrant population</td>
</tr>
</tbody>
</table>
Table 5 lists the thirteen priority neighbourhoods in the WWLHIN. These areas showed higher rates of SDOH indicators associated with negative health outcomes relative to other neighbourhoods in the WWLHIN, such as low income and unemployment status, low education, and lack of social and community support (see Table 4 above). Figure 20 illustrates the thirteen priority neighbourhoods, which appeared in the highest 20% (i.e., highest quintile) of the overall ranking.

Table 5 – Thirteen priority neighbourhoods based on overall rankings using selected indicators*

<table>
<thead>
<tr>
<th>Priority Neighbourhoods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitchener</td>
</tr>
<tr>
<td>• Vanier/Rockway</td>
</tr>
<tr>
<td>• Downtown Kitchener and Area</td>
</tr>
<tr>
<td>• Victoria Hills/Cherry Hill/ KW Hospital</td>
</tr>
<tr>
<td>• Alpine/Laurentian</td>
</tr>
<tr>
<td>• Bridgeport/Breithaupt/Mount Hope</td>
</tr>
<tr>
<td>Waterloo</td>
</tr>
<tr>
<td>• Columbia/Lakeshore</td>
</tr>
<tr>
<td>Cambridge</td>
</tr>
<tr>
<td>• Galt City Centre/South Galt</td>
</tr>
<tr>
<td>• North Galt/Elgin Park</td>
</tr>
<tr>
<td>• South East Galt</td>
</tr>
<tr>
<td>• Central Preston</td>
</tr>
<tr>
<td>Guelph</td>
</tr>
<tr>
<td>• Onward Willow</td>
</tr>
<tr>
<td>• West Willow Woods</td>
</tr>
<tr>
<td>• Two Rivers/St. George’s Park</td>
</tr>
</tbody>
</table>

*Priority neighbourhoods are listed in no particular order.
Figure 20 – Overall ranking of neighbourhoods in the WWLHIN using selected indicators†

†Indicators used in overall ranking of neighbourhoods

- Low income status
- Children living in low income households
- Government transfer payments
- Employment status
- Without completed high school
- Lone parent families
- Housing affordability
- Immigrant population

Overall ranking of priority neighbourhoods*

- Lowest quintile
- Middle quintile
- Highest quintile
- Not reportable

*Highest quintile equals to highest 20% of the total ranks.

Source: 2006 Census, Statistics Canada; Death, Vital Statistics, Mortality, Inpatient Discharges Main Table, Discharge Abstrat Database (DAD), Ambulatory Visits Main Table, National Ambulatory Care Reporting System (NACRS), Ontario Ministry of Health and Long-Term Care, Intellihealth Ontario.
Social Determinants of Health by Neighbourhood

This section will examine the data for each of the priority neighbourhoods (in bold) for the indicators of child poverty, developmental health, the immigrant population, and health care utilization.

Child Poverty and Priority Neighbourhoods

Because of the potentially significant impact of child poverty, as discussed in this report, neighbourhoods can be further prioritized by identifying areas in which children live in low income households. There were thirteen neighbourhoods in the WWLHIN area with more than 10% of children aged 6 years and under living in low income households. Ten of these neighbourhoods (in bold) were previously identified as priority neighbourhoods.

- Columbia/Lakeshore
- Downtown Kitchener and Area
- Vanier/Rockway
- Victoria Hills/Cherry Hill/KW Hospital
- Alpine/Laurentian
- North Galt/Elgin Park
- South East Galt
- Galt City Centre/South Galt
- Central Preston
- West Willow Woods
- Westmount
- Beechwood
- Lincoln/Dearborn

Developmental Health and Priority Neighbourhoods

The Early Development Instrument (EDI) measures the developmental health of young children. Developmental health includes the social, emotional, cognitive, language, and physical well-being of children. These five domains used in the EDI map directly onto the development of early childhood that have a life-long influence on health, well-being, behaviour, and learning skills.

Children scoring below the 10th percentile on two or more domains are considered vulnerable. Neighbourhoods in Wellington County and Waterloo Region were ranked separately due to variation in methodology. Wellington County (including the City of Guelph) did not include children with special

Geography of opportunity

“Children who grow up in affluent neighbourhoods, safe communities or areas that mobilize local resources to cater to the needs and desires of young families are less likely to be vulnerable in their development than are children from similar family backgrounds living in poor, unsafe and/or non-cohesive neighbourhoods.”

(Kershaw, Irwin, Trafford, & Hertzman, 2005)
needs when determining the proportion of children who were vulnerable at a neighbourhood level. In contrast, Waterloo Region included children with special needs.

Eleven of the thirteen previously identified priority neighbourhoods had the highest proportion of vulnerable children. These neighbourhoods are located in the urban centres.

In Wellington County, four neighbourhoods (the highest quintile) had the highest rates of vulnerable children (excluding children with special needs). Three of the previously identified priority neighbourhoods in the City of Guelph (in bold) and one rural area neighbourhood in Wellington County were included:

- Two Rivers/St. George's Park
- Onward Willow
- Brant Waverly
- Minto

In Waterloo Region, nine neighbourhoods (the highest quintile) had the highest rates of vulnerable children (including children with special needs). Eight of the previously identified priority neighbourhoods in Waterloo Region (in bold) and one rural area neighbourhood were included:

- Victoria Hills/Cherry Hill/KW Hospital
- North Galt/Elgin Park
- Vanier/Rockway
- Bridgeport/Breithaupt/Mount Hope
- Downtown Kitchener and Area
- Columbia/Lakeshore
- Alpine Laurentian
- South East Galt
- Elmira

**Immigrant Population and Priority Neighbourhoods**

Six of the thirteen priority neighbourhoods had comparatively high rates of immigrants, recent immigrants, and visible minorities:

- Columbia/Lakeshore
- Vanier/Rockway
- Victoria Hills/Cherry Hill/ KW Hospital
- Alpine/ Laurentian
- Onward Willow
- West Willow Woods

These neighbourhoods were also at higher risk for experiencing disadvantages in other social determinants of health. As discussed earlier, immigrants often have a harder time finding
employment, affordable housing, and child care (Guelph Inclusiveness Alliance, 2008, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009). Findings from this report suggest that neighbourhoods in the WWLHIN area with many recent immigrants and visible minorities also had the highest rates of unemployment. Additionally, cultural differences and language barriers can lead to isolation and difficulties accessing health and social services.

**Health Care Utilization and Priority Neighbourhoods**

Rates for selected negative health outcomes were calculated. Table 6 shows neighbourhoods with two or more negative health outcomes in the highest quintile for lung cancer mortality rates, and for hospitalizations due to cardiovascular disease, injury, and diabetes. Five of the thirteen priority neighbourhoods had high rates of hospitalizations and/or mortality (in bold).

**Table 6 – Neighbourhoods with two or more negative health outcomes in the highest quintile based on mortality rates due to lung cancer and hospitalization rates due to cardiovascular disease, injury, and diabetes†**

<table>
<thead>
<tr>
<th>Neighbourhood</th>
<th>Cardiovascular-related hospitalizations</th>
<th>Injury-related hospitalizations</th>
<th>Diabetes-related hospitalizations</th>
<th>Lung cancer-related mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown Kitchener and Area</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Galt City Centre/South Galt</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Two Rivers/St. George’s Park</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Central Preston</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Bridgeport/Breithaupt/Mt. Hope</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Brant Waverley</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Exhibition Park</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Township of North Wellington</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Minto</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Township of Centre Wellington</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Municipality of West Grey*</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>North Cambridge</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Blair</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Township of Puslinch</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>St. Jacobs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

†Unsuppressed data were used to determine the neighbourhoods in the top quintile for each health outcome.

*The entire Municipality of West Grey was included in the analysis.
Of the priority neighbourhoods, two areas in the City of Cambridge had high rates for all four of the negative health outcomes:

- Central Preston
- Galt City Centre/ South Galt

Other priority neighbourhoods that had high rates for two or three of the health outcomes were:

- Downtown Kitchener and Area
- Two Rivers/St George’s Park
- Bridgeport/Breithaupt/Mount Hope

Of the non-priority neighbourhoods with high rates of negative health outcomes, four were urban neighbourhoods and four were rural areas. Two urban neighbourhoods in the City of Guelph had high rates for all four of the health outcomes:

- Brant Waverley
- Exhibition Park

Three rural areas in the WWHLIN also had high rates for all four of the health outcomes:

- Minto
- Township of North Wellington
- Municipality of West Grey

Other neighbourhoods in the top quintile with high rates of negative health outcomes were:

Urban
- North Cambridge
- Blair

Rural
- Township of Centre Wellington
- Township of Puslinch
- St. Jacobs

Summary

The priority neighbourhoods that were identified in this section reflect the health and social inequities within the WWLHIN area. Further investigation is warranted to examine the SDOH and health outcomes for these identified areas, in order to implement appropriate interventions to reduce the disparities between neighbourhoods within the WWLHIN.
Social Determinants of Health and the Public Health Sector in Ontario

The Initial Report on Public Health in Ontario asserts that public health actions as defined and enforced by the Ontario Public Health Standards (Ontario Ministry of Health and Long-Term Care, 2008) are required in order to address the underlying causes of poor health and health inequities and ultimately improve the overall health of the population. Four sets of actions define this mandate:

- Identification of priority populations
- Adaptation of programs and service delivery to meet locally identified priority needs
- Assessment and sharing of information on health inequities
- Raising awareness with community decision makers and partners (Ontario Ministry of Health and Long-Term Care, 2009b)

The Ministry of Health and Long-term Care introduced the new Ontario Public Health Standards in 2008, with a firm commitment to address social determinants of health and health inequities, stating that this is "fundamental to the work of public health in Ontario" and that "effective public health programs and services consider the impact of the determinants of health on the achievement of intended health outcomes" (Ontario Ministry of Health and Long-Term Care, 2008). This intent is captured in the Foundational Standard as well as in the Program Standards. Each of the program standards begins with the requirement to identify priority populations and use situational assessments and other methods to determine most suitable interventions (Ontario Ministry of Health and Long-Term Care, 2008; Region of Waterloo Public Health, 2009).

The Ontario Public Health Standards are guided by four principles: Need, Impact, Capacity, and Partnership and Collaboration. “Addressing Social Determinants of Health” relies on each one of these. Namely, the principle of need requires that a population health assessment be conducted in such a way to acknowledge and further expose health inequities and impacts on the social determinants of health. The principle of impact demands critical review of the appropriateness, relevance and success of the interventions and potential unintended consequences. Equity-based health impact assessments built into program planning and evaluation are some of the ways to operationalize this principle. Capacity is the principle that calls for building competencies and organizational commitments to advance the knowledge and practice in this domain. Finally, Partnership and Collaboration acknowledges that the achievements in public health cannot be accomplished by individual actions in the health sector alone and calls for more collaboration within the health sector and across sectors.

Inter-ministerial collaboration is clearly visible in the domain of supporting children and youth. Several provincial ministries are responsible for the shared mandate of supporting the optimal health and
development of children. The Ministry of Health and Long-term Care (MOHLTC) mandates Ontario Public Health Units to respond to the Family Health Standards. These standards include the Reproductive Health Standard that has a goal to "enable individuals and families to achieve optimal preconception health, experience a healthy pregnancy, have the healthiest newborn(s) possible, and be prepared for parenthood"; as well as the Child Health Standard, with a goal to "enable all children to attain and sustain optimal health and developmental potential" including oral health (Ontario Ministry of Health and Long-Term Care, 2008).

The Ministry of Health Promotion and Sport supports this mandate through such initiatives as: Healthy Communities Ontario Fund; the Children in Need of Treatment program, which addresses dental health; the Ontario After-school program; the Healthy Eating and Active Living (HEAL) Action Plan; Healthy Weights; and the Injury Prevention Strategy (Ontario Ministry of Health Promotion and Sport, n.d.).

The Ministry of Children and Youth Services envisions "an Ontario where children and youth have the best opportunity to succeed and reach their full potential" and fulfills this mandate through programs such as the Healthy Babies, Healthy Children Program, which offers a blend of universal and targeted prevention, early identification and intervention strategies; programs specifically focusing on Aboriginal Children and Youth, Child Protection Services; the Best Start program, which focuses on early learning; child care services and healthy development in the early years through the Ontario Early Years Centres; the 18 month enhanced well baby visit; health screening services and Infant Development programs. All of these programs are developed and delivered collaborating with the MOHLTC and MCYS (Child Health Standard). Common to each of the three Ministries is that they consider a range of strategies in achieving their goals, including public and client education, community-based work, building partnerships and collaborative activities, and collective engagement in policy development (Ontario Ministry of Children and Youth Services, 2008).

The Ministry of Education in Ontario has been dedicated to achieving three main goals:

1. High levels of student achievement
2. Reduced gaps in student achievement
3. High level of public confidence in public education

With the recent introduction of the full day kindergarten program, more four and five year old children are in school full-time and are using more before and after school programs, which is decreasing the pressure on the child care system during the school year. This program has been gradually introduced and will be in all publicly funded elementary schools by 2015-16. The Ministry intends to provide some capital funding to help child care operators convert spaces for younger children, to amend the Day Nurseries Act in order to increase flexibility and increase the quality of child care services, and to continue supporting low income families through child care subsidies (Ontario Ministry of Education, n.d.).
This work is further supported by a number of provincial strategies and associations, the most significant and relevant of which is the Ontario Poverty Reduction Strategy, which was announced in 2008 and aims to reduce the number of children living in poverty by 25% by 2013. The Poverty Reduction Strategy is looking at progress in the following indicators: birth weights, school readiness, educational progress, high school graduation rates, Low Income Measure, Depth of Poverty, Standard of Living and Ontario Housing Measure (Cabinet Committee on Poverty Reduction, 2008).

In May 2009, the Ministry of Health Promotion and Sport (MHPS) launched the Healthy Communities Fund (HCF) – an integrated approach to improving the health of Ontarians. The HCF provides funding to community partnerships that plan and deliver locally coordinated and integrated programs and focus on policy development. The HCF focuses on six priority areas: 1) physical activity, sport and recreation; 2) injury prevention; 3) healthy eating; 4) tobacco use and exposure; 5) substance and alcohol misuse; and 6) mental health promotion. The goals of the HCF are to: create a culture of health and well-being; build healthy communities through coordinated action; create policies and programs that make it easier for Ontarians to be healthy; and enhance the capacity of community leaders to work together on healthy living. The HCF has three streams: 1) local/provincial grants; 2) local healthy communities’ partnerships; and 3) resource stream (see Appendix A).

As part of the HCF, local Healthy Communities Partnerships (HCP), under the leadership of their respective health units were asked to partner with existing local partnerships and coordination structures. Their goal was to create a shared vision, identify priorities, collect data to develop a community picture, develop new partnerships, and invite communities to create and implement healthy public policies through community engagement, consultation, and planning. Beginning in the summer of 2010, a considerable amount of HCP resources were allocated to a community consultation process which included identifying community priorities within the six MHPS priority areas and data collection and consolidation to create a picture of the community. Although timelines were tight, and some compromises had to be made to the ideal consultation process, extensive amounts of rich local data was compiled and analyzed. Much of this data is relevant to addressing the social determinants of health. Furthermore, given the recent timeframe of data collection and the fact that all three HCPs in the WWLHIN catchment area completed this consultation process, the outcomes and data are highly relevant to this report and will be described in greater detail in the following section under “Healthy Communities Partnership.”
Capacities, Needs and Progress in the Waterloo Wellington LHIN Area Public Health Sector

Public health units in communities within the WWLHIN provide prevention, health protection, and health promotion programs and services in partnership with a variety of other health, and social service organizations. While the nature of services may vary from organization to organization, all health units operate under the same legislative framework and work toward meeting the mandated requirements articulated in the Ontario Public Health Standards as well as meeting local public health needs. The activities of public health units include surveillance and population health assessment, health promotion and policy development; disease prevention and health protection. The Foundational Standard mandates assessment and surveillance activities, research and knowledge exchange and program evaluation. The Program Standards comprise: Family Health (Child and Reproductive Health), Chronic Diseases and Injuries (Chronic Disease Prevention and Prevention of Injuries and Substance Misuse), Infectious Diseases, Environmental Health, and Emergency Preparedness.

The following information has been synthesized to reflect the relevant work of the three public health units in the domain of addressing social determinants of health, with a particular emphasis on poverty reduction and alleviation, and early child development interventions. There are a great number of interventions, partnerships and strategies across the three health organizations and some of them may not be mentioned here. The type and quantity of the information provided in this section is neither exhaustive, nor completely aligned among health units. Each health unit has a unique way of responding to the needs of their communities. However, common to all of them is a dedication to collaborative work as well as strong connections and partnerships with a variety of public and not-for-profit organizations on issues relevant to social determinants of health.

In addition to the information in this section, it may be useful to consider the activities of the five Community Health Centres in the WWLHIN area that work with priority populations. These activities are listed in Appendix B.

Grey Bruce Health Unit
The Grey Bruce Health Unit has established a strategy to address social determinants of health through the assessment and evaluation of programs and services. This includes applying an Equity Lens and addressing health literacy levels of the audiences they reach (Grey Bruce Public Health, 2010).

A recent community assessment report prepared for the Grey Bruce Health Unit identified unique social determinants of health and related challenges for the Health Unit. Some of those challenges
include: a predominantly rural environment, First Nations communities that suffer social and economic inequities, lower than provincial average levels of income and education, lack of opportunities for youth employment and long wait lists for supportive housing (Clarke & Barclay, 2010).

In 2010, Grey Bruce Health Unit commissioned a comprehensive review of strengths and vulnerabilities of their children and youth in order to develop baseline information and track progress over time. This report was conceived as a planning tool to assist service provider networks in addressing these vulnerabilities (Glenda Clarke and Associates, 2010), and its conclusions were consistent with the previous community assessment. Selected findings include:

- A higher proportion of at risk families identified through the Healthy Babies Healthy Children program in comparison to the standard set by the Ministry of Children and Youth Services
- Higher than provincial average rates of high birth weight
- Increasingly high rates of heavy drinking and related incidence of fetal alcohol exposure, in comparison to the national rates
- Limited access to pediatric services for preschool children
- Evidence of vulnerability with respect to readiness to learn at school entry (Glenda Clarke and Associates, 2010)

The recommendations from the report call for placing importance on strengthening services and supports for children and their families. While housing has not been an area of vulnerability, it has been identified that both short- and long-term housing supports are needed for more than 290 families that are waiting for supportive housing units (Glenda Clarke and Associates, 2010).

Visible minorities including recent immigrants and Mennonite/Amish people, are at risk of isolation and marginalization, and have limited access to culturally adequate services and supports. For youth in Grey Bruce, issues include lack of employment opportunities and inadequate funding for youth mental health services (Glenda Clarke and Associates, 2010).

Relevant recommendations from this report include a commitment to work with community partners to improve service and supports for families with low socioeconomic status and the provision of enhanced culturally-appropriate services and supports (Glenda Clarke and Associates, 2010).

A list of relevant activities to address social determinants of health in Grey Bruce is captured in the Appendix C.
Healthy Communities Partnership in Grey Bruce

After the engagement of over 150 groups from various sectors, including local, regional, and provincial groups, the Grey Bruce Healthy Community Partnership identified the following areas of focus relevant to social determinants of health:

- Establishing policies to increase access to healthy and affordable local food
- Shifting cultural norms to reduce the acceptability of high-risk drinking practices
- Increasing access to safe and affordable housing
- Improving knowledge and awareness of mental health issues (Wonnacott & Ferguson, 2011)

Wellington-Dufferin-Guelph Public Health

Wellington-Dufferin-Guelph Health Unit's strategic plan “Moving Ahead, 2011-2016” commits to using multiple strategies and programs to address social determinants of health, reduce health inequities and improve accessibility of their programs. The plan also articulates a commitment to engage in building collaborative partnerships to optimize a population health approach, and to evidence informed practice through the use of surveillance and other means (Wellington-Dufferin-Guelph Public Health, 2011b).

The Wellington-Dufferin-Guelph Health Unit is engaged with a large selection of community initiatives that address early years, youth, poverty, food security, and new immigrant issues. A detailed list of these activities and the organizations that address these issues in WDG communities is provided in the Appendix C.

Healthy Communities Partnership in Wellington, Dufferin and Guelph

In 2010/2011, Wellington-Dufferin-Guelph Healthy Communities Partnership (WDG HCP) worked in partnership with community stakeholders to conduct a scan of collaborations and networks; partner on a provincial policy scan; collect data from various sources and with over 100 organizational stakeholders to create a community picture.

The WDG HCP engagement process confirmed community stakeholder’s commitment to work within a SDOH framework to build a healthy community. On a broader scale, all geographic regions within WDG recommended actions that focus on: poverty elimination; increasing the effectiveness of partnerships and collaborations; systems-based approaches to coordinated action; building on existing structures and collaborative models; the built environment; and focusing on priority and at-risk populations (e.g., seniors and youth). The three communities also identified a common interest in using certain strategies, such as: partnering with schools; policy development; using a peer approach; social marketing and raising awareness; place-based programming; and increasing capacity and building skills.
The following are key actions based on community consultations and data for the WDG HCP that are explicitly addressing social determinants of health:

- Improve access to healthy food through:
  - Place-based programs such as community gardens
  - Capacity building and food skills training through programs such as collective kitchens
  - Awareness raising and building community readiness through activities such as the development and promotion of a food charter
  - Focused conversations and dialogue to support coordinated action for improving access to healthy food in organizations, partnerships, and collaboratives
  - Advocacy and policy development towards a sustainable food system

- Improve access to physical activity through:
  - Focused conversations and dialogue to support coordinated action for improving access to recreation in organizations, partnerships, and collaboratives
  - Increasing readiness and capacity to adopt access to recreation policies
  - Programs that focus on supporting recreation opportunities for those with low income (e.g., shoe exchange program and subsidies)
  - Active transportation planning
  - Place-based no-cost community programming (e.g., in motion week)

- Improve youth resiliency through:
  - Focused conversations and dialogue to support coordinated action for youth mental health, resiliency, and substance and alcohol misuse
  - Capacity building and professional development focusing on engaging youth around mental health issues and building resiliency
  - Creating a shared understanding of mental health promotion strategies and best practices

Consultation data also acknowledged that Wellington, Dufferin, and Guelph are three independent entities that are not connected by a regional structure. The WDG HCP process has brought these communities together, yet they each seem to have a unique set of needs and potential actions. The three communities are committed to preserving and enhancing the existing partnerships, and trying to avoid duplication wherever possible.

**Region of Waterloo Public Health**

Over the last ten years, Region of Waterloo Public Health has produced many health status reports and fact sheets that describe the Waterloo Region’s population health from the perspective of social determinants of health. The topics include health disparities among new immigrants, people with activity limitations, seniors, children and youth, people living with low income, and rural communities (Region of Waterloo Public Health, 2011).
Region of Waterloo Public Health is also committed to addressing health inequities through the use of a planning framework that focuses on identification of the needs of priority populations and designing interventions either independently for those populations or within the existing universal interventions. The following are the outcomes of these processes with implications to addressing social determinants of health:

- People living with low income, newcomers to Canada, and families with young children are the groups that could benefit from food skills development delivered through a neighbourhood-based peer programs (Martell, 2009).

- An analysis of the healthy weights program confirmed the need to focus on several priority neighbourhoods. The review recommended to start early, (before elementary school), work with low income families, and recognize unique community characteristics and needs. The report also confirms that school communities are settings that have the potential to be crucial contributors to developing healthy life patterns, and that it is important to use a multi-faceted approach and coordination reflected in partnerships (Jadeja, 2009). A similar approach was recommended for the physical activity interventions – using school settings, and working with municipalities and community partners to address overweight and obesity issues among 14 years and older population (Dyck & Garbarz, 2009).

- The review of falls prevention revealed that it would be beneficial to incorporate a range of strategies from this domain into the existing programs that work with priority populations, such as the HBHC program, Reproductive Health program, Home Child Care program and the Peer Health Worker program as well as to include key external organizations that are already involved in outreach and screening activities with priority populations and addressing social determinants of health in the delivery of programs such as, Ontario Early Years Centre, Day Care Centres, YMCA Cross-Cultural and Community Services, and the Multicultural and Reception centre (Wiseman & Bowman, 2009).
• A review of services provided for children ages birth to six with a co-location of services as a planning perspective identified the unique needs of four priority populations: people living in rural areas, young mothers, new immigrant families and people living on low income. This review reiterated that in order to increase the likelihood of families to attend and benefit from services, these services must be close to their homes, in their neighbourhoods, and close to the places that they frequent; places that they feel they "own" and that they can use to meet multiple needs. The report also acknowledged the need for community-wide planning, advocacy and support for families that are affected by multiple social determinants of health (such as language, housing, food, inclusion, and literacy). It also acknowledged peer-based interventions as a particularly useful approach to reaching out to priority populations. The shared life experience and settings, the knowledge of the community and issues people face, and the flexibility to adjust programs to people's needs are some of the key features that differentiate and add value in this type of support to priority populations (Bermingham, 2009). Peer approach has also proven to be working well in supporting the integration of immigrant newcomers (Hatzipantelis, 2009).

• A cancer screening review revealed the need to reach out to women, immigrant women, those without a regular physician, with lower education, and living in rural areas. This review, too, called for collaboration with social and other services to deliver programming that is suitable to the populations and considerate of the barriers to participation in screening programs (Parkinson & Nicholson, 2009).

**Highlights:**

All health units are committed to supporting people who live in poverty through strategies for poverty alleviation, tailored interventions, and community advocacy.

All health units call for more culturally appropriate services and supports.

All health units are part of multiple health coalitions around chronic disease prevention and child development.

All health units support food security initiatives through community work.

Waterloo Region and Guelph-Wellington support the Immigrant Partnership Initiative.

All health units have identified priority populations for their child health, chronic disease prevention, and injury and substance misuse interventions.

All health units use some form of neighbourhood and peer-based programming to complement professional interventions.
• A review of the attendance of health fairs for prenatal education revealed that those are mostly attended by middle income and educated women, even when advertised to specific populations. This report calls for examining strategies that would allow for greater outreach to vulnerable populations through other means, such as policy advocacy for workplaces, smoke-free policies, and engagement in multi-sectoral advocacy at the community, societal, and systems levels (McIlroy & Bolden, n.d.).

Region of Waterloo partners with a number of organizations to address social determinants of health, including those that address poverty reduction, housing, early years, and new immigrant issues. A detailed list of these activities and coalitions is reviewed in Appendix C.

**Healthy Communities Partnership in Waterloo Region**

Healthy Communities Partnership process in Waterloo Region engaged a range of stakeholders in the community including hosting of two community-based meetings with 58 attendees, and administered an online survey that gathered responses from 105 community stakeholders. At the end, a priority setting meeting with 20 key stakeholders summarized the findings and delivered final recommendations. The general findings include expressed concern for unemployment, health and well-being of immigrants and the need to focus on systems-based approach and collective action and meaningful engagement of the priority populations. The following are the recommendations for the Healthy Community Partnership that are explicitly addressing social determinants of health: Implement the Healthy Community Food System Plan and improve food skills and food literacy in target populations, and increase access to culturally appropriate foods for new Canadians through community kitchens:

• Improve the affordability and availability of physical activity, sports, and recreation opportunities, including region-wide active transportation.
• Use a social determinants of health approach to address the underlying contributing factors associated with mental health and to advocate for stakeholders to adopt and fund such an approach.
• Ensure that there is sufficient community capacity to meet rural and urban mental health related needs, once awareness has been raised. This should be undertaken by involving people who use the services.
• Use peer approaches in tobacco cessation and injury prevention initiatives.
• Increase prevention efforts and the creation of policies to address the use of tobacco products (including smokeless tobacco) among youth (Dillon Consulting Limited, 2011).
Interventions to Address Social Determinants of Health

“Closing the Gap in a Generation,” a report issued by the World Health Organization’s Commission on Social Determinants of Health, calls for “urgent and sustained action, globally, nationally and locally” to deal with health inequities. Furthermore, the Commission acknowledges the critical role of the civil society and local movements that “both provide immediate help and push governments to change.” The report provides three key recommendations to deal with health inequities:

- Improve daily living conditions of people who are impacted, starting with improvements to early life and early child development; placing health in the centre of governance and planning; and supporting fair employment and working conditions.
- Tackle the inequitable distribution of power, money and resources.
- Measure and understand the problem and assess the impact of action (World Health Organization: Commission on Social Determinants of Health, 2008).

In the Canadian context, a number of documents have been issued in the last ten years that made a case for addressing social determinants of health. The Pan-Canadian Public Health Network did a synthesis of six key population health reports that were produced in 2008 and provided conclusions and recommendations for action that call for a shift away from the exposure of the data and exploration. The report states that:

- There is sufficient awareness across the sectors that social determinants of health are a significant contributor to the health of Canadians and impact on the health care sector and the economy.
- An abundance of evidence has been produced to explain that low income alone and, in combination with other social determinants of health, has a profound impact on health, particularly to children who live in poverty or in single parent households, as well as new immigrants and aboriginal population.
- The income gap has increased and worsened in the last few decades, which puts the most vulnerable low income populations at an even greater risk. An increase in food insecurity has been identified in almost 50% of the population in the lowest income quintile.
- Evidence of successful policies and practices at the national level is sufficient to prove that Canada can do better in the domain of reducing health inequities. This needs to be translated into improved policies to increase minimum wage and insurance benefits and improve support to early childhood development initiatives. Leaders in all sectors who are already aware of the above, need to take action and become champions for addressing these issues and making sure that they become public knowledge that will eventually translate into the public pressure for policy change.
• It is becoming important to move away from research that repeatedly proves the facts on health disparities, toward research that looks at building good surveillance systems and explores, monitors and evaluates interventions, including their cost effectiveness (Population Health Promotion Expert Group: Working Group on Population Health, 2009).

In addition to this, the health care sector needs to acknowledge its own responsibility in addressing the needs of priority populations in order to avoid the widening of health inequities. This can, and needs to, be done by introducing targeted approaches within and in addition to universal interventions; developing tools and processes to advocate for and assist other sectors in conducting equity impact assessments; and spearheading integrated, comprehensive and collaborative approaches to reducing health inequities (Health Council of Canada, 2010).

Generally, the policy and practice that can contribute to the reduction of health inequities need to include:

• Actions that aim at the reduction of poverty, marginalization, and exclusion
• Provision of supportive and culturally appropriate social support and health care
• Seamless continuum of services
• A system that is prepared to place the focus on the most disadvantaged individuals and population groups, through the commitment to “upstream”\(^6\) interventions (Gardner & Ticoll, 2007; Sutcliffe et al., 2007)

An overview of promising interventions to address social determinants of health summarized ten promising practices to reduce health inequities by the public health sector. These include the above recommended interventions, as well as a few that are more specific to the public health sector, such as improved surveillance and population health assessment to report the status and progress in addressing health inequities and social marketing to introduce new social norms. This document also recommends that policy and other decision makers use equity-focused health impact assessments to examine proposals and actions in order to prevent further widening of inequities (Ontario Public Health Association, n.d.).

---

\(^6\)Upstream interventions are large scale interventions focusing on social determinants and societal influences such as policies that relate to income, social networks, food supply, transportation, or pollution. Even though they are large scale interventions, they can be addressed in local settings through collaboration of groups and communities who share common concerns (State Government of Victoria, Australia, Department of Health, 2011).
Understanding Promising Practices

When it comes to addressing social determinants of health it is important to look at the successes of both very broad and universal policies and interventions, and the interventions within smaller segments of the population, in their specific environments, and their unique issues. This means that we need to use both quantitative and qualitative evidence to understand their effectiveness. This approach may not be as limiting in generating promising interventions as it appears. As the notion of credible evidence in this field expands to acknowledge qualitative information, certain approaches repeatedly show up in the reviews and evaluations as providing good results, such as peer interventions, high intensity supports, and cross-sectoral collaborations.

The following groups of interventions are derived from a variety of sources including evaluation reports, academic and grey literature, and published and unpublished manuscripts that provide evidence for the use of specific interventions. Different types of evidence were used to develop section, from evidence published in systematic reviews and peer-reviewed journals, to evidence that comes from qualitative evaluations of interventions in the specific contexts. Addressing social determinants of health may require a paradigm shift in how we approach the notion of credible evidence.

The Best Practices portal and Evidence.ca offer systematic reviews for interventions in public health. For this review, a search was conducted initially for interventions with a strong effectiveness rating, but that search delivered very few studies, mostly those that managed to prove effectiveness through the quasi-experimental and other highly structured and complex methodological designs. With an addition of the moderate rating, more studies were introduced. A qualitative analysis of the content of the reviewed studies proved that the moderate rating predominantly comes from the fact that there was a limited ability to generalize the findings, rather than a compromised quality of the reports. According to these sources, the key promising interventions for addressing social determinants of health are:

- Multi-sectoral policies, such as employment and income, housing, early years policies, and urban policies
- Comprehensive Early Years Interventions
- Neighbourhood and Peer-based interventions that complement direct and intensive interventions with at risk individuals
- Interventions focusing on at risk groups
- Continuous provision of strong evidence on the impact of social determinants of health and related interventions
Policy Development and Multi-sectoral Collaboration

Various terms have been introduced in the last few years to describe the need for inter-governmental dialogue, cross-examination of public policies and placing "health in all policies" (Health Council of Canada, 2010). Common to them is that they clearly call for improved understanding across the sectors (public, private and non-profit), that the creation of public policies and programs needs to avoid widening health disparities and that action on reducing them needs to be collective, coordinated and integrated (Health Council of Canada, 2010).

The following list offers some policy development solutions that have been recommended provincially, nationally and internationally. All of them are based either on the evidence of positive outcomes, or the assessment of cost-effectiveness and health care savings.

Policies Related to Income and Employment

- Progressive economic and social policies that aim at addressing unequal distribution of wealth, such as progressive taxation, equalization of benefits and services, improved employment, gender equity and improved social inclusion contribute to narrowing of the health equity gap (Population Health Promotion Expert Group: Working Group on Population Health, 2009; Glazier et al., 2007).
- Support for the social assistance review which is currently under way in Ontario. The review is expected to acknowledge the actual cost of living and access to food, to aim at poverty reduction by 25% in 5 years, and to address the need for equitable access to health care and health support services through community health centres and other institutions. A review of employment insurance policies is expected as well (Community Social Planning Council of Toronto, University of Toronto Social Assistance in the New Economy Project & Wellsley Institute, 2009).

Policies to Support Early Child Development

- Policies for optimization of early childhood learning, additional support for children who need it and the optimization of the school environment (Pascal, 2009)
- Policies to strengthen maternity and parental leave, and related employment standards (Pascal, 2009)
- Policies to provide good quality care once parents transition back into the workforce for children age 19 months to kindergarten, (Kershaw, Anderson, Warburton, & Hertzman, 2009), including policies for before- and after-school child care (Lefebvre, Merrigan, & Roy-Desrosiers, 2011; Pascal, 2009). Good child care is seen as a means of achieving social solidarity, promoting lifelong learning, supporting parental employment and addressing equity (Child Care Canada, n.d.). An economic analysis of the cost of poverty looked at child care policy solutions and
stated that there is a high rate of return for investments in targeted child care for low income populations, in a range of $4 to $16 dollars for every dollar invested (Laurie, 2008).

- Development of local policies and guidelines for family-friendly places and integrated early learning and care (Ontario Ministry of Health and Long-Term Care, 2009a; Pascal, 2009)

Policies to Reduce the Incidence of Diabetes

The Institute for Clinical and Evaluative Sciences (ICES) suggests the following policies to improve the conditions in neighbourhoods with a goal of reducing and preventing the incidence of diabetes (Glazier et al., 2007):

- Improve activity-friendliness in communities by stimulating the changes in urban policy to increase opportunities for walking to destinations in residential areas, enable mixed land use, and reduce dependence on cars by enhancing public transit and other active modes of transportation.
- Create more opportunities for physical activity by using a multi-faceted approach to the development of recreational facilities and green spaces that takes into consideration cultural differences and social and environmental barriers among high risk groups.
- Advocate for policies to develop mixed income communities, increase presence of community gardens, neighbourhood markets, good food box programs, alternate food programs, and policies that promote healthier food choices in restaurants and other food outlets.
- Create incentives for primary care providers to locate in high risk areas and add new health satellite services in underserved areas and allow Local Health Integration Networks support local planning (Glazier et al., 2007).

Supportive Housing Policies

Many studies from the United Kingdom claim that re-housing, refurbishment, and energy efficiency measures are effective in providing health gains. There is also some evidence and support for supportive and subsidized housing, and the provision of rental vouchers for use in the private housing market that would and allow families choice in residential location. Such policies also lead to improved neighbourhood safety and families’ reduced exposure to violence. The benefits of these policies are also beneficial for people living mental illness (Public Health Agency of Canada, 2011).
Comprehensive Early Child Development Interventions as a Cost-effective Primary Prevention

There are several reports and studies that provide persuasive arguments that early child development interventions are a sound long term social investment.

An analysis of cost-effectiveness of early intervention policies with disadvantaged children provides a comparison of several scenarios and a clear example of the advantage of earlier interventions. The analysis states that the children benefit from interventions both cognitively and socially, which is visible in reduced crime rates, school retention, and decrease in teen pregnancy. The study also states that the economic returns on these early investments are high and may decrease as the intervention is offered later into adolescent years. Furthermore, it claims that there is "no trade-off" between equity (targeting programs at disadvantaged families) and efficiency (getting the highest economic returns), provided that the investments are made at early ages (Cunha & Heckman, 2006).

James Heckman, a Nobel Prize laureate and a prominent economist from the University of Chicago, gives an example of the Perry Preschool Program. The program was an early years intervention with 3 year olds that invested a modest 2.5 hours of classroom instruction during the week, supplemented by 1.5 hours of weekly home visits. This combination delivered lasting effects after only two years and no further intervention. The participants were tracked for decades for the outcomes. The economic analysis of this intervention revealed between 7 and 10 percent yearly returns. The study confirms that there are both positive cognitive and non-cognitive effects to such interventions. Heckman goes further to state that inequalities that exist before a child's birth can, and should, be addressed in early childhood and parental education and that these are "effective and cost-efficient ways to provide equal opportunity, achievement and economic success" (Heckman, 2011). Heckman states that investment is calling for paradigm shift in the policy focus to acknowledge the notion of the importance of early years and the economic and human capital consequences that may arise from inequalities produced by inaction (Heckman, 2008).

The “15 by 15 report: A Comprehensive Policy Framework for Early Human Capital Investment” in British Columbia states that any rate in child vulnerability above 10%, which is genetically and biologically expected, is unnecessary, avoidable and potentially costly, should interventions not be put in place to prevent such outcomes. The authors go further in providing an economic analysis which states that the cost of dealing with the consequences of the current 29% of vulnerable children may account for as much as 20% of the gross domestic product over the next 60 years, claiming that the total sum of this loss is equal to 10 times the total BC provincial debt (Kershaw et al., 2009).

Like British Columbia, Manitoba has well developed cost effectiveness measures to provide evidence for their focus on primary prevention. It stated that the "cumulative increase in the economic burden between 2008 and 2026 would be $ 4.7 billion" if the risk factors of overweight, obesity, smoking, and
inactivity in the proportion of the population with these risk factors stays the same. Achieving even a 1% reduction per year through investing in reducing this proportion of the population generates a significant savings. With an estimated investment of $529 million in effective programs, the direct health care cost savings would be about $540 million and nearly $1.8 billion in indirect cost. Such estimates clearly call for investment in primary prevention initiatives, stimulation of the intervention research to support the development of effective interventions, and a collaborative approach that extends beyond the health sector (Health Council of Canada, 2010).

Comprehensive and multi-faceted programming for early years

Meta-analyses and systematic reviews have demonstrated that early childhood development programs that are comprehensive and community-based have a protective role in a child’s development, prevents developmental delays and are effective in narrowing the gap between the children from low income families and those from higher income families (Anderson et al., 2003; Public Health Agency of Canada, 2011).

A recent analysis of the delivery of Public Health programs for children, from birth to age six in the Waterloo Region (Bermingham, 2009) provides evidence that services are better delivered and used if delivered in a seamless fashion and offered at multi-use sites where with common planning, promotion, administration, and referral systems.

The Child Health Guidance Document of the Ontario Public Health Standards provides the evidence-supported direction to addressing social determinants of health in children. Recommended practices include the use of the healthy communities approach that focuses on broad, multi-sectoral partnerships and coalitions to identify and respond to community needs through community outreach, development, and various capacity building approaches. The goal of such an approach is to solidify the efforts of individual interventions, influence community change, and develop policies at different levels, locally as well as provincially and federally (Ontario Ministry of Health and Long-Term Care, 2009a).

The same call for building strong community collaboration, networks and seamless service is supported by the evidence in reports from all levels of government that review early child development support (Guelph Community Health Centre, 2011; Health Council of Canada, 2010; Population Health Promotion Expert Group: Working Group on Population Health, 2009; Wellington-Dufferin-Guelph Public Health, 2011b; World Health Organization: Commission on Social Determinants of Health, 2008; Anderson et al., 2003; Canadian Council on Social Development, 2006; Cunha & Heckman, 2006; Health Council of Canada, 2006; Gardner & Ticoll, 2007; Glazier et al., 2007; Pascal, 2009; Raphael, 2010a; Raphael, 2010b; Sutherns & Krol, 2011; Tardiff, 2009; Telford, 2011).
The **Triple P** (Positive Parenting Program) is an example of an evidence-based parenting and family support strategy focused on preventing behavioural, emotional, and developmental problems in children by enhancing the knowledge, skills, and confidence of their parents. It provides a common framework for service providers and consistent messages for parents. A flexible curriculum supports parents with children birth to age 18 from all strata of society, and regardless of the composition of the family. The Triple P model assumes that parents have different needs and require various levels of support.

Triple P is based on a flexible system of increasing intervention intensity: from offering general information for all parents, to mid-range guidance (e.g., tip sheets, parenting advice, workshops), to offering more advanced clinical help for parents who are experiencing significant behavioural issues with their children. Triple P is one of the most extensively evaluated interventions and has consistently shown positive effects on observed and parent-reported child behaviour problems, parenting practices, prevention of child maltreatment and parents' adjustment across sites, investigators, family characteristics, cultures, and countries (Prinz, Sanders, Shapiro, & Lutzker, 2009; Sanders, 2008). Improvements in children’s behaviour are sustained over time. The universal nature of the program also decreases the risk of stigma associated with some organization-specific parent education programs.

The positive effects of Triple P support the widespread adoption and implementation of the program in an increasing number of countries and in quite diverse cultural contexts around the world” (de Graaf, Speetjens, Smit, de Wolff, & Tavecchio, n.d.). A cost analysis of Triple P as a multi-level intervention for families parenting children with conduct disorders has proven that it is a cost effective intervention. This is particularly important given the high costs of the consequence of untreated conduct disorders among children and youth (Mihalopoulos et al., 2007).

**Comprehensive Program Planning for Priority Populations**

The Guelph Community Health Centre provided a set of recommendations and strategies to address the needs of priority populations in a comprehensive way. The report suggests a two-pronged approach with focus on the work in neighbourhoods and issue, or population-specific interventions. The review acknowledges that collaborative work and partnerships are the most beneficial way of addressing multiple needs of individuals and their communities. It provides insight to the complexity of providing services and addressing access barriers, stating that one organization is not able to achieve the goal of meeting these multiple needs. The review calls for three key recommendations:

- A systems approach that seeks out and invites participation and commitment from multiple organizations in the health sector and beyond, through a health equity planning approach. This approach could be operationalized with a new planning body that involves relevant community
stakeholders and would take a role in monitoring health outcomes, conducting health equity assessments, building supportive transition across the health care sector, engaging in collaborative work, creating new program initiatives and generating research to support the development of new models.

- Development of health equity assessment and care planning tools and models to address the unique needs of priority populations with their primary care providers
- Development of an inclusion strategy that will ensure that the existing marginalized populations are provided opportunities to be integrated with the broader community and fully participate in civic life.

The external aspects of the implementation strategy related to these recommendations included the engagement of the WWLHIN with respect to the formation of the planning body and offered some specific tasks that would operationalize this vision, goals and objectives, determine resource requirements and identify some short-term initiatives to demonstrate the commitment (Guelph Community Health Centre, 2011).

**Neighbourhood and Peer-based Support**

Neighbourhood-based interventions have been acknowledged for a long time as an effective way of reaching out to vulnerable populations. This work needs to start with the reliable identification and prioritization of the neighbourhoods and the populations within them (Nelson, Pancer, Hayward, & Kelly, 2004; Ontario Ministry of Health and Long-Term Care, 2008; Ontario Ministry of Health and Long-Term Care, 2009a; Ontario Public Health Association, n.d.; Public Interest Strategy and Communications Inc., 2011; Region of Waterloo Public Health, 2009; Glazier et al., 2007).

Peer-based support has been indicated in many evaluation studies as a promising approach that complements broad-based interventions and provides culturally appropriate, accessible, and convenient high intensity service to people who deal with multiple and intersecting barriers. Overall benefits of this approach in achieving positive health outcomes have been confirmed in several systematic reviews and evaluation studies. The benefits include reduced social isolation in new immigrant families, effective adoption of physical activity promotion messages; increased knowledge and skills for parenting; and adoption of healthy living practices. The program has also been successful in improving nutrition and increasing participants’ level of physical activity (Fuller, 2004; Public Health Agency of Canada, 2011; Public Health Research, Education and Development program, 1999; Bermingham, 2009; Hatzipantelis, 2009).

A systematic review of the peer or paraprofessional support emphasizes that it is important that these interventions be high in intensity and incorporated into a broader set of interventions, that include support from professionals (Public Health Research, Education and Development program, 1999).
The review of best practices offers information that home visiting delivered in neighbourhoods and through various forms of peer support provides positive outcomes for children's mental health, mental development, and physical growth. This approach is also beneficial for reducing maternal depression, improving mothers’ employment, education, nutrition and various other health habits. Some evidence for government cost saving is mentioned as well in the context of these interventions (Public Health Agency of Canada, 2011).

Home visiting programs, such as the Nurse Family Partnership, build on family strengths, help with early identification of risks associated with developmental difficulties, and work with families to support healthy child development (Early Years and Child Development Branch Integrated Services for Children Division, 2003; Krysik & Lecroy, 2007). The program is based on the theory that parents play a critical role in child development, and on research that supports that the early years is the optimal time for prevention interventions (Sar et al., 2010).

The Nurse Family Partnership home visiting program is the most rigorously evaluated home visiting program and has shown strong evidence of positive outcomes for families at risk (MacMillan et al., 2009; Coalition for Evidence-Based Policy, 2011; Olds, 2006; Eckenrode, 2010). This intervention focuses on working with mothers who are teens, first time moms, live with low income, and are single parents. The program focuses on supporting mothers by providing them with information on healthy child development, education around positive parenting practices, self-care practices, and referrals to other community supports as needed. MacMillan et al. (2009) found that the Nurse Family Partnership program shows the best evidence for preventing child physical abuse and neglect of all the home visiting programs they reviewed. In a cost savings analysis, the Washington State Institute for Public Policy found that “from a standpoint of their impact on crime, substance abuse, educational outcomes, teen pregnancy, suicide, child abuse and neglect, and domestic violence” the Nurse Family Partnership program “saves $17,000 per family” (Olds, 2008, 17).

A recent evaluation of the role of neighbourhood groups in creating protective environments among families at risk for the Family and Children Services of Guelph and Wellington County, confirmed the value of informal neighbourhood-based support as an affordable and effective solution to support families and children and prevent harm in a way that formal services cannot provide (Family and Children Services of Guelph and Wellington County, 2011). This is consistent with the outcome evaluation findings from many other sources, including the Better Beginnings programs across Ontario (Nelson et al., 2004).

A systematic review of various diabetes prevention interventions shows that using community educators and peers, one on one interventions, individualized assessment and re-assessment, feedback, and other high intensity interventions, prove to work well with socially disadvantaged
populations, provided that there is an investment in community and family outreach and follow up (Public Health Agency of Canada, 2011).

Neighbourhood-based approaches are also recommended to reduce socio-cultural barriers to accessing health care services, increase access to non-English speaking residents, and provide culturally appropriate settlement and integration support to new immigrants (Public Health Agency of Canada, 2011). These needs are well aligned with the peer-based approach (Community Social Planning Council of Toronto, University of Toronto Social Assistance in the New Economy Project & Wellsley Institute, 2009; Glazier et al., 2007; Public Interest Strategy and Communications Inc., 2011; Public Health Agency of Canada, 2011).

Interventions Focusing on At-risk Groups
A number of interventions that focus on at-risk groups have proven to be successful in closing the health equity gap. A few Ontario examples highlighting this include:

- A community-based program, Pathways to Education (Pathways) originated in Toronto’s Regent Park community, in 2001. Prior to the implementation of Pathways, Regent Park, as a community, was defined by the area’s low income, high unemployment rate, low educational attainment, and large proportion of single-parent families (Pathways to Education, 2011). Aiming to address the issues of youth school attendance, academic achievement and credit accumulation, Pathways partnered with parents, community agencies, volunteers, local school boards, and secondary schools to develop intense, multi-faceted, and long-term support for high-school students. Based on four pillars of academic, social, advocacy and financial supports, Pathways successfully reduced the high-school dropout rate from a 56% baseline in 2001 to less than 11.7%, in 2011 (Pathways to Education, 2011). These results were replicated in five additional pilot sites in communities across Canada, and Pathways consistently reduced drop-out rates by 70% (The Boston Consulting Group, 2011). An assessment of the program by the Boston Consulting Group has found that Pathways delivers a $24 return for every $1 invested (Boston Consulting Group, 2011). Pathways demonstrates that youth from low income communities can achieve as well, or better than, their wealthier peers (Boston Consulting Group, 2011; Pathways to Education, 2011). Pathways has also demonstrated a high rate of return, with estimated social benefit of the program in the value of $50,000 per student (Laurie, 2008).

- Smoking cessation interventions. Smoking is linked with low education and socioeconomic status, poor social support and psychological illness, and the many health effects of smoking are well documented (Lumley, Chamberlain, Dowswell, Oakley, & Watson, 2009; Smoke-free Ontario Scientific Advisory Committee, 2010). Providing interventions such as: nicotine replacement therapy, physician’s advice, individual behavioural counselling, and increasing
taxes by 10%, and increasing local/provincial legislation would reduce socioeconomic healthcare gaps and would save 33,308 acute care hospital days, or $37 million, for the Canadian healthcare system (Ontario Tobacco Research Unit, 2011). Further, cessation interventions targeting pregnant women can reduce low birth weight and pre-term labour and research has shown their cost effectiveness (Lumley et al., 2009; Smoke-free Ontario Scientific Advisory Committee, 2010).

The Canadian Best Practices Portal offers additional insight into the success of various health interventions that focus on at risk population:

- A systematic review of early years interventions in the United States strongly recommends publicly funded, center-based, comprehensive early childhood development programs for low income children aged 3-5 years. Such interventions show effectiveness in preventing developmental delay, assessed by improvements in grade retention and placement in special education.
- There is evidence that higher intensity programs geared towards women with lower socio-economic status decrease the incidence as well as the risk of developing major depression.
- Educating about and promoting nutrition has differential impact: these interventions seem to be more effective with children from higher income families and less effective with children from disadvantaged areas. This suggests that a universal approach to nutrition education may widen inequities between these two groups.
- One comprehensive review stated that, with low income groups, a variety of behavioural change techniques help reduce smoking and increase physical activity and healthy eating, despite not being backed up by a theory. Based on this review, education combined with setting-specific and realistic goals proves to be effective.
- There is a moderate level of evidence that interventions with fewer sessions and a clear behavioural focus may be effective in improving parental sensitivity and infant attachment with at risk groups who deal with multiple social and emotional challenges.
- Changing the health behaviour of women of child-bearing age from disadvantaged backgrounds requires continued education in support of initial interventions. Family involvement and social support from peers may also be important features in interventions that aim to improve diet.
- There is some evidence of the effectiveness of parenting programs for teenage mothers and their children with respect to improving a range of psychosocial and developmental outcomes for mothers and their children.
- Finally, a review of successful interventions acknowledges that all health care professionals need to engage in the provision of culturally competent and appropriate strategies (Public Health Agency of Canada, 2011).
Maintaining Continuous Presence of the Information

The proliferation of studies and evidence, and a greater public presence of information on the impact of social determinants of health, has been shifting both the public and some key stakeholders’ opinions. This is resulting in an increased interest in action on reducing health inequity in Canada (Population Health Promotion Expert Group: Working Group on Population Health, 2009). A persuasive health argument carries a great potential for transformation of policies and transcends to other sectors. This is visible in the call from the Conference Board of Canada which invites the corporate world to address social determinants of health, providing the economic and health cost reduction rationale, together with examples of promising progressive business and organizational policies both within and outside of Canada (Conference Board of Canada, 2008). Public opinions too seem to be shifting. The opinion polls in British Columbia reveal close to 80% support targets set to improve the health of citizens at risk (Population Health Promotion Expert Group: Working Group on Population Health, 2009).

These trends indicate that the public presence of data and information on the impact of social determinants of health and health inequities needs to be solidified even further and enhanced with new information that provides evidence of the effectiveness of various interventions, and examples of successful policies and practices. Furthermore, the communication of these issues to decision makers has to be explicit in calling for the re-orientation of the thinking about responsibilities for population health, from solely residing within the public health and health care systems, toward being the responsibilities of the overall civil society and all levels and sectors in the government (Butler-Jones, 2008; Canadian Institute for Health Information, 2004; Conference Board of Canada, 2008; Health Council of Canada, 2010; Kershaw et al., 2009; Ontario Public Health Association, n.d.; Guelph Community Health Centre, 2011).
Summary of Findings and Recommendations

This section provides a summary of the review and connects the key findings from the previous sections to create a series of recommendations. Some issues and themes dominated the review and key findings, such as the impact of low income and early child development on overall health. The summary is organized to highlight:

- Priority populations and priority neighbourhoods in the WWLHIN area, that are at a higher risk of experiencing disadvantages compared to other neighbourhoods.
- Health issues, including illness and injury, faced by the priority populations and the priority neighbourhoods in the WWLHIN area.
- Promising interventions to address the potential health inequities (see Figure 21).

When reading the recommendations, it is important to note that each of the WWLHIN communities/neighbourhoods has shown unique population characteristics, community needs and capacities, as well as community-tailored approaches to dealing with local issues. Building on these approaches, in addition to others, will be key when creating effective programming needed to eliminate health inequities.

Figure 21 - Model for WWLHIN intervention on social determinants of health
Priority Populations and Neighbourhoods in the WWLHIN Area

Numerous research studies, position statements and other reports provide strong evidence that people living on low income face multiple risks for a range of physical and mental health disorders. People with low income access health services more frequently, and are at a higher risk of becoming ill or injured. Being poor prevents people from meeting their basic needs and creates barriers to accessing resources that contribute to overall health and well-being.

Populations that may be particularly affected by low income are children and youth, new immigrants, visible minorities, Aboriginal people, seniors, people living with disabilities, and those living in remote rural communities. Low income also affects the housing situation, accompanied by a poor physical environment and challenges in accessibility of healthy food.

Children are particularly vulnerable to living in low income conditions as the complexity of the implications of poverty affects their families, even pre-birth, and continues to do so well into their adulthood. Children who live in low income households are at a higher risk of having a number of health problems later in life, even if their socioeconomic status changes later on. Since these childhood issues are common to all sub-population groups and communities, commitment to addressing these needs in various environments means addressing other potential vulnerabilities such as living in remote rural areas, being a recent immigrant, being a visible minority, etc.

New immigrant families and their children have been identified in many studies as a priority population. Even though the poverty that many immigrants experience may be transitional in nature, the impact may potentially have serious consequences for their growing children.

Data analysis based on pre-existing reports from each of the public health units and 2006 Canadian Census data identified thirteen priority neighbourhoods. These neighbourhoods showed greater vulnerability based on a ranking system using eight social determinants of health indicators (SDOH), within the categories of income, education, social and community support, housing, and immigration. Some of the contextual findings include:

- Thirteen neighbourhoods in the WWLHIN had more than 10% of children aged 6 years and under who lived in low income households. Ten of these neighbourhoods are priority neighbourhoods.
- Based on the Early Development Instrument (EDI), three out of four neighbourhoods in Wellington County with the highest rates of vulnerable senior kindergarten children (excluding children with special needs) were priority neighbourhoods. In Waterloo Region, eight out of nine neighbourhoods with the highest rates of vulnerable senior kindergarten children (including children with special needs) were priority neighbourhoods.
• Six out of the thirteen priority neighbourhoods had high rates of immigrants, recent immigrants, and visible minorities.
• Downtown Kitchener and Southgate were the only two neighbourhoods in the WWLHIN where over 2% of people declared Aboriginal status. One of these neighbourhoods was previously identified as a priority neighbourhood.
• Although none of the rural areas were identified as priority neighbourhoods they did have several unique characteristics in terms of social determinants of health.

A general assessment of the priority populations was completed in the context of public health programming across the three participating health units and the Healthy Community Partnership consultations. Low income populations, young mothers, children and new immigrants were consistently identified as priority populations. Some areas, particularly in Grey Bruce, also face unique issues with Aboriginal and rural populations.

Health Issues of the Priority Populations and Neighbourhoods in the WWLHIN Area

The synthesis of literature on the impact of SDOH points to the multitude of health issues of living in poverty. There is strong evidence that low income is related to higher prevalence of behaviours that lead to negative health outcomes, such as inadequate diet, lack of physical activity, smoking, and substance misuse. The studies that used both self-reporting and hospitalization data show strong evidence of greater incidence of overweight and diabetes, mental health disorders, injuries among adults and children, chronic obstructive pulmonary disease, and substance misuse disorders among people who live on low income. Household income is strongly associated with higher rates of most chronic diseases, even when education, disability, smoking and physical activity are controlled.

Not all thirteen priority neighbourhoods that were identified using the eight selected SDOH indicators showed higher rates of hospitalizations and mortality. However, five of the priority neighbourhoods were ranked in the highest quintile based on mortality rates due to lung cancer, and hospitalization rates due to cardiovascular disease, injury, and diabetes. Of the non-priority neighbourhoods that ranked highest for negative health outcomes, six were rural areas and four were urban areas.

7 Grey Bruce has not identified new immigrants as a priority population
Promising Interventions and Strategies

The review of the policy directions and promising interventions highlighted several key strategies to be considered:

- **Develop and/or support policies** to enable sustainable livelihoods and optimal living conditions for all individuals and families in the WWLHIN area focusing on:
  - Ending persistent poverty
  - Supporting employment and living wage
  - Increasing food security
  - Improving access to adequate housing
  - Promoting healthy child development and learning, including increasing access to affordable quality child care
  - Enhancing physical environments
  - Improving access to recreation and sports

There is strong interest in advocating for healthy public policy in WW LHIN communities. Policy advocacy requires improving the connections with, and supporting local coalitions and groups that are spearheading strategies on poverty reduction, early childhood development and care, new immigrant issues, and other policy initiatives addressing the social determinants of health.

- **Provide comprehensive community interventions for families with children by**:
  - Facilitating collaboration between health, education and social service agencies
  - Creating opportunities for policy advocacy and community-wide planning activities
  - Providing seamless services and systems-based approaches that build on existing strengths and capacities within communities

- **Support neighbourhood-based interventions and peer programming** that offer intensified interventions/services that are complementary to institution-based support. To ensure success:
  - Interventions need to address the unique needs of priority populations in an informal, accessible, flexible and culturally appropriate way
  - Consider co-location of services, and/or services delivery close to where people live or places they frequent

- **Provide interventions that focus on specific priority populations and local issues** that have proven to have a strong and positive impact in closing the health equity gap such as:
  - **Triple P** parenting initiative
  - Pathways to Education program
  - Smoking cessation interventions
  - Targeted home visiting programs such as The Nurse Family Partnership
• **Use equity impact assessments:**
  - For both planning and delivery of services in order to design equity-focused interventions within and in addition to universal programs in all sectors including health

• **Support and enable intervention research** to build an evidence base for promising practices that address the social determinants of health to:
  - Support financial investment in promising programs/interventions
  - Justify decisions to use and expand these interventions in our communities
  - Provide directions for further policy development

There are many examples of promising practices and interventions at the neighbourhood level across the WWLHIN area for example, peer-based programs/supports in Waterloo and neighbourhood based community development program in Guelph.

**Recommendations and Next Steps**

A facilitated discussion with the project steering group, working group members and several topic experts from each of the participating health units was held to examine the findings from this review and suggest recommendations for action. The participants had an opportunity to review the preliminary report and data, and hear each other's perspectives and arguments for advancing particular interventions. The participants represented the perspectives of healthy communities policy and practice, epidemiology; early child development; chronic disease prevention; health equity; and the health care system. After proposing individual and group solutions and prioritizing suggested interventions, the group has generated the following recommendations to address social determinants of health and narrow the health equity gaps in the WWLHIN area communities:

1. Sharing and validating the findings and recommendations more broadly with affected communities, networks, organizations, and decision makers and invite their action.

2. Enable the use of accessible, culturally appropriate, and meaningful interventions that have proven to increase health benefits and reduce health care costs. Specifically:
   a. **To improve high school graduation rates:** invest in the [Pathways to Education](#) program in the priority neighbourhoods. Staying in school and educational achievement lead to improvement in socioeconomic conditions and therefore minimize or remove barriers to health. This program is a proven social and health investment that delivers between 40 and 70 percent reduction in high school drop-out rates. The program has been successfully implemented in vulnerable neighbourhoods in collaboration with parents, community agencies, volunteers, local school boards, and secondary schools. Pathways delivers a $24 return for every $1 invested.
b. **To address low income, accessibility and cultural barriers**, invest in peer-based programs such as the Peer Health Worker and Community Nutrition Worker programs in Waterloo region and the Community Development Neighbourhood programs in Guelph that have proven to assist people in gaining access to information, and builds skills in a non-threatening way while keeping their unique needs in mind. These interventions reduce social isolation in at risk populations including new immigrant families; improve adoption of healthy living practices; and improve parenting skills (including reducing the need for intervention related to child protection), nutrition, and physical activity. Despite the proven benefits and being very cost effective, some of these programs operate on limited and/or very modest funds or inconsistent, pilot funds. In the case of the neighbourhood programs supported by community development workers in Guelph, the program has recently been discontinued, despite the wide based support of health and social service partners, due to funding.

   c. **To address early childhood development**: support the existing work of community agencies by investing in an evidence based parenting support program like the Triple P initiative that has proven to prevent behavioural, emotional and developmental problems in children by enhancing the knowledge, skills and confidence of their parents. It is important to offer both universal and targeted supports to families as there is clear evidence that while vulnerabilities in children exist in low income areas, they are also seen across social gradients.

   d. **To address chronic disease**: support a combination of interventions and policies such as those for smoking cessation that include nicotine replacement therapy, physician’s advice, and individual behavioural counselling, combined with tobacco tax increases and local/provincial legislation (policies). A combination of universal and targeted interventions is essential for creating and sustaining significant behavioural changes that ultimately impact acute healthcare costs.

3. Develop and support policies to enable optimal living conditions of all individuals and families in the WWLHIN area that includes:
   a. Policies to end persistent poverty
   b. Policies to support employment and living wage
   c. Policies to increase food security
   d. Policies to improve housing
   e. Policies to support child development and child care
   f. Policies to improve physical environment, all in order to enable sustainable livelihoods and optimal living conditions for all individuals and families in the WWLHIN area
These actions proposed above need to be supported by the following guiding principles and support mechanisms:

- Priority neighbourhoods and communities need to be engaged in the development of optimal solutions that fit their needs and unique circumstances. It is important to ensure that no further harm or stigmatization occurs in this process.
- Sharing the evidence related to the cost effectiveness of public health policies and interventions with private, public, business and other sectors and inviting them to join the health sector in investing in early years interventions and poverty reduction.
- Introducing mechanisms that link existing WWLHIN community networks across issues (e.g., linking early years and poverty reduction networks) in order to strengthen their impact and maximize policy and intervention outcomes.
- Advocating for the use of equity-based health impact assessment in the design of all interventions addressing social determinants of health.
- Developing mechanisms to monitor the population health of the WWLHIN area residents and the progress in narrowing down the health equity gaps in identified areas.
- Supporting intervention research and continue to build on the existing evidence base for promising practices in addressing the social determinants of health.

While not an exhaustive list, the recommendations, above, provide a starting point for broader community action. The unique opportunity, created by the WWLHIN in commissioning this report, to work together across Wellington, Waterloo, and South Grey has highlighted the critical importance of coordinated, collaborative efforts needed to impact the health of our most vulnerable residents. The recommendations are, quite simply, the beginning of our collective work to reduce health inequities for the communities of the WWLHIN area.
Appendix A: Healthy Communities Framework 2011/12

Ontario Ministry of Health Promotion and Sport
Healthy Communities Framework 2011/12

Vision
Healthy Communities working together and Ontarians leading healthy and active lives.

Goals
- Create a culture of health and well-being
- Build healthy communities through coordinated action
- Create policies and programs that make it easier for Ontarians to be healthy
- Enhance the capacity of community leaders to work together on healthy living

Healthy Communities Fund Components

Grants Project Stream
A cost-sharing grant program that supports eligible organizations to develop and deliver non-capital health promotion initiatives in partnership with other organizations.

Partnership Stream
Promote coordinated planning and action among community partners to create policies that make it easier for Ontarians to be healthy.

Resource Stream
Provides training and support to build capacity for those working to advance health promotion in Ontario, including local Partnerships and organizations that apply for funding through the HCF Grants Project Stream.

Guiding Principles
- Empower communities using a shared decision-making model
- Strengthen partnerships within and between communities and between local and provincial partners
- Mobilize a variety of community partners and sectors for change
- Focus on those at-risk for poor health to reduce disparities
- Build on research, evidence and experience
- Accountable to communities and the ministry through measurable outcomes
- Work toward sustainable programs and strategies

Priorities and Outcomes

Physical Activity, Sport and Recreation
- Increase access to physical activity, sport and recreation
- Support active transportation & improve the built environment

Injury Prevention
- Promote safe environments that prevent injury
- Increase public awareness of the predictable and preventable nature of most injuries

Healthy Eating
- Increase access to healthier food
- Develop food skills and healthy eating practices

Tobacco Use/Exposure
- Increase access to tobacco-free environments

Substance & Alcohol Misuse
- Support the reduction of binge drinking
- Build resiliency and engage youth in substance misuse prevention strategies

Mental Health Promotion
- Reduce stigma and discrimination
- Improve knowledge and awareness of mental health issues
- Foster environments that support resiliency

Healthy Communities working together and Ontarians leading healthy and active lives.
## Appendix B: Overview of Programs and Services for Priority Populations in WWLHIN Community Health Centres

<table>
<thead>
<tr>
<th>Community Health Centre</th>
<th>Grand River Community Health Centre (GRCHC) Brantford</th>
<th>Guelph Community Health Centre</th>
<th>Kitchener Downtown Community Health Centre</th>
<th>Woolwich Community Health Centre</th>
<th>Langs Farm and North Dumfries Community Health Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area Served</strong></td>
<td>Catchment area of Brantford and Brant County, with an emphasis on the downtown core of Brantford and the following priority populations:</td>
<td>People living in downtown Kitchener area, new Canadian and Aboriginal people in Kitchener or Waterloo</td>
<td>Geographical Catchment Area of Woolwich and Wellesley townships</td>
<td>North Dumfries Township along with Ayr, Roseville, Drumbo, Canning, New Dundee, Plattsville, Washington, Clyde, and Branchton</td>
<td></td>
</tr>
<tr>
<td><strong>Priority Populations Served</strong></td>
<td>Individually/families without a healthcare provider The homeless and under-housed Those experiencing mental health and addictions issues Youth Seniors/older adults Off-reserve aboriginals without a status card Non-insured patients Individuals with chronic disease</td>
<td>Children, prenatal to 6 years of age and their families Homeless/under-housed and downtown vulnerable adults New immigrants Individuals with barriers to good health, including a: low income, disability (physically or mentally), isolation, single parents, unemployment. Youth Seniors Low income families New Canadians Aboriginal people Homeless</td>
<td>Youth Seniors Low income families New Canadians Aboriginal people Homeless Seniors and their caregivers Rural and farming communities Families with young children Youth (14-19) Early Years Residents of the Langs Farm area</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interventions</strong></td>
<td>Primary care services Outreach clinics Mental health and addiction services Social work services Nutrition services Health promotion/education programs Youth services Evaluation and research services Integrated support services in collaboration with community partners</td>
<td>Primary Care Breastfeeding Nutrition Clinical Services Outreach Social Services Healthy Living Physical Activity Food Health Outreach Developmental Health Children’s Programs Parent Support and Information Parent Resources</td>
<td>General Programs Breastfeeding Buddies Chronic Disease Self-management Diabetes Program Quit smoking Program ID Clinic Latin American Diabetes Outreach Living on Survival Budget Strengthening Mental Health in Cultural Linguistic Communities</td>
<td>Woolwich Primary health care Nutritional counselling Hospice services Group Programs: Caregiver support Grief support Specialized fitness programs Adult aerobics H.U.G.S. (a program for parents and young children) Gesundheit fur Kinder (pregnatal nutrition program for Low German speaking Mennonites from Mexico) Diabetes self care Rural farm health programs Nutrition, lifestyle and health education programs Wellesley Community Health Worker Registered Dietitian Chiropodist (foot care) Therapist/Social Worker Physiotherapist Registered Practical Nurse Nurse Practitioners Family Physicians Support Staff</td>
<td>Counselling services for individuals, couples and families Dietitian and nutrition services such as healthy eating programs and weight control Breast feeding consultation services and support for moms and babies Access to midwives Programs for older adults Community outreach by peer workers Speech-language pathology services to preschoolers Social work services</td>
</tr>
</tbody>
</table>
Appendix C: Actions on Social Determinants of Health in Grey Bruce, Wellington-Dufferin-Guelph, and Waterloo Region

Grey Bruce Health Unit

In May 2010, Grey Bruce Health Unit organized a Healthy Communities Conference. Prior to this in June 2009, a number of community partners came together for a strategic planning session which summarized steps related to the environmental scan of the activities across the community. Three areas of need were identified in the environmental scan: first, improving the health unit’s knowledge of the work of the organizations involved; second, compiling evidence from various research reports; and third, conducting an environmental scan on three topics—substance and alcohol misuse, mental health and injury prevention.

Grey Bruce has also done extensive networking by organizing forums focusing on age-friendly communities, the impact of alcohol use, and engaging the community to speak about the future of Grey Bruce health. Aboriginal youth are presently involved in a Photovoice project that considers the factors that impact the health of youth and the walkability of local communities. Grey-Bruce has also committed to developing a rural healthy communities approach (Wonnacott & Ferguson, 2011).

Grey Bruce Health Unit is already working in several partnerships, including the Grey Bruce Healthy Communities Partnership, the Grey Bruce Integrated Health Coalition, and the Grey Bruce Health Network; and is connecting with local politicians to support these efforts.

Grey Bruce Health Unit offers a training program for community agencies to work on reducing and eliminating poverty. “Bridges Out of Poverty” began with a 2010 certification training of 42 trainers throughout Grey and Bruce Counties from a variety of organizations (public health, local school boards, and social service agencies) (Grey Bruce Public Health, 2011a; Grey Bruce Public Health, 2011b). As well, Grey County Ontario Works and the Adult Learning Centre have implemented a program for Ontario Works clients called “Getting Ahead,” which is led by a certified Bridges Out of Poverty trainer. The program helps people living in poverty assess their personal resources, learn where to find help, create a plan for developing those resources and carry out that plan. “A step in the right direction” planning process organized a food security discussion with community leaders, people living in poverty, ministerial agencies, social service agencies, and public health. As a result, a working group was formed to investigate implementation strategies for food security best practice options. Grey Bruce Health Unit is also committed to looking at a healthy community food system approach to address community food security.
Wellington-Dufferin Guelph Health Unit

- **The Guelph & Wellington Task Force for Poverty Elimination** was established in 2009 and supports people who live in poverty. This is a multi-stakeholder group composed of interested individuals, the private and public sectors, and the research community. One of the most recent actions of this group includes advocacy for an affordable transit pass program to be developed in collaboration with the City of Guelph and available at a reduced rate for people facing economic hardship (Seagram, Herron, Castaldi, Elleri, & O'Connor, 2011). The Task Force is also working on organizing community input for the Social Assistance Review, issues of living wage, housing and food security, access to recreation, and collaborates with many communities across Ontario on advocacy for poverty reduction (Guelph & Wellington Task Force for Poverty Elimination, 2011), including getting poverty reduction on the political agenda of all parties during local, provincial and federal elections.

- **The Wellington-Dufferin-Guelph Children's Charter** was developed in 2007 and is supported by 55 local organizations. The Charter builds on the United Nations Convention on the Rights of the Child with a vision to ensure that the WDG communities become better places for children.

- **The Growing Great Kids (GGK) is the Best Start Network for Guelph and Wellington.** It is a partnership focusing on the health and well-being of children prenatal to age six. Among other things, this partnership has developed a seamless, integrated, and effective service system for children (prenatal to age six) called GGK System of Care with a single point of access to all services and supports for children and their families in these communities.

- **The City of Guelph** states that one of its goals is to become “a healthy and safe community where life can be lived to the fullest” (City of Guelph, 2011) and indicates support to several key social determinants of health including housing and education. The City of Guelph's Sustainable Neighbourhood Framework reviews and confirms how the city partners and supports the neighbourhood groups and the Guelph Neighbourhood Support Coalition.

- Similar to the Waterloo Region, Guelph is also engaged in the Guelph Wellington Local Immigration Partnership; a planning process with the goal of developing a comprehensive and well integrated system of immigrant settlement support. This system includes improved access to, and benefits from, the health care system. In addition to this process, Guelph-Wellington also offers direct services and supports through Immigrant Services Guelph-Wellington.

- Wellington County has a number of networks that are working to address social determinants of health. These include the Community Gardens Network, fee assistance programs (such as Fee Assistance Recreation), The Children’s Foundation of Guelph and Wellington, and the Supporting Kids in Camp initiative.
• **Picture the Change:** In early 2011 Public Health collaborated with the City of Guelph to challenge youth to take pictures of health and social issues in their city. Pictures were submitted by youth on a variety of topics including poverty, social support, the built environment, active transportation, and access to fresh food.

• **STEPS (Support Through Engagement in Programming and Sport):** The STEPS program, a partnership between a local youth shelter, Public Health, and the City of Guelph, is funded by the Ministry of Health Promotion and Sport’s Healthy Communities Grant Stream. This program aims to provide marginalized and at-risk youth in our community with access to sport and recreation programming by reducing barriers (i.e., cost, transportation, and lack of sports equipment) and increasing incentives for participation (i.e., access to fresh healthy food, free participation, free shoes). The program works to increase social support among youth and between youth and service providers by having service providers participate in sport and recreation programming with youth. A youth leadership team has also been developed to ensure that youth and adults share decision making around programming.

• **The Coalition for Report Cards on the Well-Being of Children,** a committee of community service providers in Wellington-Dufferin-Guelph, is working to develop a series of report cards. These reports share timely, local data that provide a measure of the well-being of children with regards to their health, learning, and development. The reports are framed by social determinants of health and are used as planning tools to guide policy and service plans for children's service providers as well as local children's planning groups.

In late 2010, the Guelph Community Health Centre (GCHC) reviewed its focus on priority populations and came up with a set of recommendations and a transition framework to address them (Wellington-Dufferin-Guelph Public Health, 2011a). This review included both an environmental scan and community consultations, and arrived at several key conclusions and recommendations. The conclusions confirmed the need to focus on certain priority groups and neighbourhoods where there is still a visible lack of access and benefit from services. While the nature and efficiency of services provided was not challenged, it was acknowledged that the health equity gap has been widening in the community and that the priority populations continually show the need for support. As expected, low income neighbourhoods continue to experience the greatest barriers. Onward Willow continues to be a neighbourhood of priority for Guelph CHC based on the Social Risk Indices, along with the Brant and the Two Rivers neighbourhoods. Additional groups that the report identified included isolated seniors, youth, people with multiple disorders, and LGBTI communities that experience access and other barriers.
Region of Waterloo Public Health

Region of Waterloo partners with a number of organizations to address social determinants of health. The following are several initiatives that have particular relevance to the issues of low income families, new immigrants, and early years.

Opportunities Waterloo Region (OWR) is an agency that acts as a regional convener of stakeholders from multi-sectors of the community (business, government, non-profits, and people) and facilitates the efforts necessary to develop and implement comprehensive, community-owned solutions, with the goal to provide people with opportunities to prosper and reach their fullest potential. Region of Waterloo Public Health regularly supports OWR with grant applications and the development of programming that aims to reduce food insecurity, such as neighbourhood markets and community gardens. This organization has also been the main partner that Region of Waterloo Public Health has been sharing data and information on low income with, as it leads various poverty reduction advocacy activities.

All Roads Lead to Home The Region of Waterloo Social Services lead the Homelessness to Housing Stability Strategy for Waterloo region under the name All Roads Lead to Home. The purpose of this strategy is to strengthen the housing stability for vulnerable populations. The strategy was originally part of the Region’s corporate strategic plan for 2007-2010, where the Regional council endorsed targets to house 150 people experiencing or at risk of persistent homelessness, by December 2010. By the end of 2010 this target was met and an additional 271 affordable housing units were completed and occupied. In 2008, the Regional Council endorsed a new Affordable Housing Strategy to help create at least 500 more units by the end of 2013.

Immigration Partnership The Immigration Partnership creates and enhances partnerships and implements collaborative strategies in order to help facilitate successful settlement and integration of immigrants and refugees in Waterloo Region. The Partnership includes a wide diversity of organizations, municipalities, businesses and individuals coming together to address issues of settling, working, and belonging. Waterloo Region Public Health has been involved in the Immigration Partnership since its inception through contributing to the development of the community vision and action strategies, local demographic research on immigrants, and as a member of the Belonging Action Group.

Region of Waterloo Children and Parents Services Committee (ROWCAPS) serves as the Best Start Network for Waterloo Region. This multi-sector committee focuses on developing an integrated system of prenatal and early childhood services that work together to optimize early learning and healthy child development for all children (primarily prenatal to six years of age) and their families. Collaborative work in the areas of early literacy, positive parenting, family support services, quality
child care, early identification of children at risk for developmental delays, and coordination of services for children in child care with special needs are examples of work completed to date.

In March, 2011, ROWCAPS endorsed the concept of developing an Early Years System Plan for Waterloo Region, with a focus on building an 'integrated platform' for children prenatal to 12 years of age. In May 2011, a community forum on system integration was held with more than 80 professionals from organizations serving children and families. The purpose of the forum was to share information about system integration, gather community input into the vision and scope of an Early Years System Plan, and to gage interest in participation in a joint system planning venture. Participants agreed that the time is right to rethink our current service system plan, delivery, and organization.

In addition to ROWCAPS, multiple stakeholders across Waterloo Region also participate in collaboratives that focus on child well-being. For example, the Children And Youth Services Planning Council (CYSPC) exists to engage in broad-based planning, reflective of community priorities, to shape and provide a collaborative system of services specifically for the priority population of vulnerable children from birth up to 18 years of age. The Alliance for Children and Youth of Waterloo Region (Alliance) is an independent organization of child and youth serving agencies and interested individuals who work together, using strength-based approaches, to improve well-being for children, youth, and families in Waterloo Region. Collectively, ROWCAPS, CYSPC, and the Alliance contribute to addressing a variety of social determinants of health that impact children and their families.
References


Public Health Research, Education and Development Program. (1999). *A systematic review of the effectiveness of Peer/Paraprofessional interventions targeted towards mothers (parents) of 0-6 year old children in promoting positive maternal (parental) and/or child health developmental outcomes.* Hamilton, ON: Effective Public Health Practice Project, PHRED Program.


Addressing Social Determinants of Health in the Waterloo Wellington Local Health Integration Network Area
A Public Health Perspective on Local Health, Policy, and Program Needs

TECHNICAL REPORT

Developed in collaboration by Wellington-Dufferin-Guelph Public Health, Region of Waterloo Public Health, and Grey Bruce Public Health for the Waterloo Wellington Local Health Integration Network
ACKNOWLEDGEMENTS - TECHNICAL REPORT

Steering Committee

Co-Chairs
Andrea Roberts  Director, Child & Family Health, WDGPH^1
Sharlene Sedgwick Walsh  Director, Healthy Living, Planning & Promotion, ROWPH^2

Members
Wing Chan  Health Data Analyst, WDGPH
Jessica Deming  Epidemiologist, ROWPH
Melissa Kwiatkowski  Planner, System Design & Transformation, WWLHIN^3
Alanna Leffley  Senior Epidemiologist, GBHU^4
Jennifer MacLeod  Program Manager, Health Analytics, WDGPH
Kristina Schmidt  Health Data Analyst, WDGPH
Patrick Seliske  Epidemiologist, WDGPH
Erin Tardiff  Public Health Planner, ROWPH

Authors
Wing Chan  Health Data Analyst, WDGPH
Jennifer MacLeod  Program Manager, Health Analytics, WDGPH
Kristina Schmidt  Health Data Analyst, WDGPH

Primary Contributors
Jessica Deming  Epidemiologist, ROWPH
Stephen Drew  Health Data Analyst, ROWPH
Alanna Leffley  Senior Epidemiologist, GBHU
Virginia McFarland  Data Analyst, GBHU
Patrick Seliske  Epidemiologist, WDGPH
Erin Tardiff  Public Health Planner, ROWPH

Additional Contributors
Nam Bains  Team Lead, LHIN Support Team, MOHLTC^5
Lynn Bestari  Early Years Data Analysis Coordinator, Guelph CHC^6
Jillian Dixon  Health Data Analyst, Child & Family Health, WDGPH
Asma Razzaq  Epidemiologist, ROWPH
Amy Romagnoli  Data Analysis Coordinator, YMCA Ontario Early Years
Heather Snider  Program Assistant, WDGPH
Amanda Tavares  Health Data Analyst, ROWPH

LHIN Support Unit of the Health Analytics Branch, Ministry of Health and Long-Term Care

Funding for the development of this report was provided by the Waterloo Wellington Local Health Integration Network.

^1 Wellington-Dufferin-Guelph Public Health
^2 Region of Waterloo Public Health
^3 Waterloo Wellington Local Health Integration Network
^4 Grey Bruce Health Unit
^5 LHIN Support Unit of the Health Analytics Branch, Ontario Ministry of Health and Long Term Care
^6 Guelph Community Health Centre
# TABLE OF CONTENTS

LIST OF ABBREVIATIONS .................................................................................................. 4

INTRODUCTION ................................................................................................................ 5

METHODOLOGY ............................................................................................................... 5

  Neighbourhood Geography .................................................................................................................... 5

Data Sources .................................................................................................................... 5

  Data Analysis ........................................................................................................................................... 7

Geocoding Methods for Health Outcome Indicators................................................................. 9

FINDINGS ....................................................................................................................... 10

  Social Determinants of Health .............................................................................................................. 10

Waterloo Wellington LHIN Geography ................................................................................................. 11

Waterloo Wellington LHIN Neighbourhoods .................................................................................... 11

Waterloo Wellington LHIN Population.................................................................................................. 16

  Indicators of Income ............................................................................................................................. 21

Indicators of Education ......................................................................................................................... 31

  Indicators of Social and Community Support ....................................................................................... 36

Indicators of Housing ............................................................................................................................ 44

Indicators of Early Child Development ............................................................................................... 48

Indicators of Immigration ...................................................................................................................... 57

Indicators of Health Outcomes ............................................................................................................. 63

DISCUSSION: PRIORITY NEIGHBOURHOODS .................................................................. 69

  Local Picture of the WWLHIN ................................................................................................................ 69

  Summary ............................................................................................................................................... 75

REFERENCES ................................................................................................................... 76

GLOSSARY ...................................................................................................................... 79

CALCULATION OF INDICATORS FOR MAPS AND TABLES .................................................. 80

LIMITATIONS .................................................................................................................. 83
# LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCHS</td>
<td>Canadian Community Health Survey</td>
</tr>
<tr>
<td>CHC</td>
<td>Community Health Centre</td>
</tr>
<tr>
<td>CSD</td>
<td>Census Subdivision</td>
</tr>
<tr>
<td>DA</td>
<td>Dissemination Area</td>
</tr>
<tr>
<td>ED</td>
<td>Emergency Department</td>
</tr>
<tr>
<td>EDI</td>
<td>Early Development Instrument</td>
</tr>
<tr>
<td>KPS</td>
<td>Kindergarten Parent Survey</td>
</tr>
<tr>
<td>LHIN</td>
<td>Local Health Integration Network</td>
</tr>
<tr>
<td>MOHLTC</td>
<td>Ministry of Health and Long-Term Care</td>
</tr>
<tr>
<td>PCCF</td>
<td>Postal Code Conversion File</td>
</tr>
<tr>
<td>PCCF+</td>
<td>Postal Code Conversion File Plus</td>
</tr>
<tr>
<td>PHU</td>
<td>Public Health Unit (or health unit)</td>
</tr>
<tr>
<td>SDOH</td>
<td>Social Determinants of Health</td>
</tr>
<tr>
<td>WWLHIN</td>
<td>Waterloo Wellington Local Health Integration Network</td>
</tr>
</tbody>
</table>
INTRODUCTION
This technical report presents all of the findings from the analysis and interpretation of Social Determinants of Health (SDOH) and health outcome indicators for the main document, “Addressing Social Determinants of Health in the Waterloo Wellington Local Health Integration Network Area: Public Health Perspective on the Population Health, Policy and Programming Needs”. These findings provide a local picture of SDOH in the Waterloo Wellington Local Health Integration Network (WWLHIN) area. The material presented in this technical report is intended to be complementary to the main document. Please refer to the main document to gain background knowledge on SDOH and for recommendations to address SDOH in the WWLHIN area.

METHODOLOGY
Neighbourhood Geography
All SDOH and health outcomes data were analyzed at the neighbourhood level. A neighbourhood is defined as a small area of geography, comprised of a relatively homogenous population that is used by PHUs for planning and evaluation purposes.

Neighbourhood boundaries for Waterloo Region were defined by Region of Waterloo Public Health, and for Wellington County, including the City of Guelph, by Wellington-Dufferin-Guelph Public Health. Neighbourhoods in the WWLHIN are defined as the following:

- Waterloo Region – 45 custom-defined neighbourhoods. Geographic boundaries for these neighbourhoods do not align with the Census areas defined by Statistics Canada.
- Wellington County – 7 Census Subdivisions (CSDs) and 13 custom-defined neighbourhoods for the City of Guelph. The boundaries used to define these neighbourhoods are based on 2001 Census boundaries.
- Grey County – the Municipality of Southgate and a small area of the Municipality of West Grey; a Dissemination Area (DA) that was based on the 2001 Census boundaries.

Data Sources
Social Determinants of Health Indicators
Data used to measure SDOH indicators in the WWLHIN area were obtained from the 2006 Canadian Census at the neighbourhood level. 2006 Census data were obtained separately from Region of Waterloo Public Health and Wellington-Dufferin-Guelph Public Health for Waterloo Region and Wellington County, and from the Ontario Ministry of Health and Long Term Care (MOHLTC) for the Municipality of Southgate and area of Municipality of West Grey that is within the WWLHIN area. Note that the 2006 Census data were originally provided by Statistics Canada to the two PHUs and MOHLTC.
Of the possible indicators from the 2006 Census data, approximately 40 SDOH indicators were chosen. However, not all were used in this analysis. The selected SDOH indicators were included in the development of maps and figures and tables, and other indicators were discussed textually within the main document and technical report. Population counts by age and sex were also extracted.

Prior to the release of Census data from Statistics Canada to other organizations, Census data counts are rounded by Statistics Canada to either the nearest zero or five using a probability-based algorithm for confidentiality purposes. Census data that were collected in the short form Census are based on the entire Canadian population (e.g., population counts). Data that were collected on the long form Census (i.e., most SDOH data such as visible minorities) are based on a sample of 20% of the Canadian population. More detailed information on the Census can be obtained from Statistics Canada.

SDOH indicators that were not available from the 2006 Census, but are considered key SDOH, were obtained from pre-existing reports that provided findings from the Canadian Community Health Survey (CCHS) and the Early Development Instrument (EDI) as well as other local data sources. These reports were received from the three PHUs as well as Community Health Centres (CHCs) that are part of the catchment area for the WWLHIN. The PHUs and CHCs include the Region of Waterloo Public Health, Wellington-Dufferin-Guelph Public Health, and Grey Bruce Health Unit, and the Guelph CHC and the Woolwich CHC. The pre-existing reports were used to provide general results of each of the SDOH indicators at a city, township, municipality, regional, or county level. Reports and personal communications were needed to produce findings for the EDI indicator at a neighbourhood and city, regional, or county level.

Health Outcomes Indicators
Unscheduled Emergency Department (ED) visit data, inpatient hospitalization data, and mortality data within the WWLHIN by age group (0-14, 15-24, 25-44, 45-64, 65+ years) and sex were obtained from the MOHLTC for each PHU area. ED visit and inpatient hospitalization data for fiscal years April 1, 2007 to March 31, 2010, and mortality data for calendar years 2005 to 2007 were provided. The MOHLTC retrieved the data from IntelliHEALTH Ontario, a web-based health information database managed by the MOHLTC that houses health-related data from a variety of sources. The original data sources were as follows:

- ED visit – Ambulatory Visits Main Table from the National Ambulatory Care Reporting System.
- Inpatient hospitalization – Inpatient Discharges Main Table from the Discharge Abstract Database.
- Mortality – Deaths Main Table from the Vital Statistics Mortality Database.

Health outcome data were provided in separate batches by the MOHLTC due to neighbourhoods being defined differently in each PHU area within the WWLHIN. Health outcome data were extracted for each PHU:

- Wellington County – data were extracted by the LHIN and municipality of patient.
• City of Guelph – data were extracted by the LHIN and postal code of patient.
• Waterloo Region – data were extracted by the LHIN and postal code of patient.
• Municipalities of Southgate and West Grey – data were extracted by the LHIN, municipality, and postal code of patient.

Originally, other than total number of ED visits, hospitalizations, and mortality, data on 28 different health outcomes were requested from the MOHLTC. The intention was to examine the patterns between SDOH indicators and these 28 health outcomes. However, due to time constraints, limited amount of data was provided, and only four health outcomes that are known to be associated with SDOH were requested:

• Cardiovascular disease
• Injury (external cause)
• Diabetes
• Lung Cancer

Data Analysis
Details of how the indicators were calculated using 2006 Census and health outcome data are presented in the section titled Calculation of indicators for maps and tables.

Rates for Indicators
Rates for SDOH and health outcome indicators were used in lieu of counts to allow for easier comparisons between neighbourhoods or PHU areas. Rates for each SDOH indicator per 100 population (i.e., percentage) were calculated for each neighbourhood. Rates for each health outcome indicator per 100,000 population were calculated for each neighbourhood. The 2006 Census population data were used as the denominator to calculate the rates for the indicators. Cases of health outcome data where the sex was indicated as “other” were excluded from the analysis to be consistent with the Census data, where male and female are the only categories for sex.

Please note that there are limitations with respect to the calculation of the rates for the indicators. The Limitations section provides more detailed information regarding this issue.

Neighbourhood Maps for Indicators
Maps were used to provide a graphic illustration of the rates of SDOH and health outcome indicators for each neighbourhood in the WWLHIN. Rates per 100 population (i.e., percentage) were presented for the SDOH indicators and averaged rates over three fiscal/calendar years per 100,000 population for the health outcomes using choropleth (colour-shaded) maps. Darker shades were assigned to higher rates while lighter shades were assigned to lower rates. Distributions of values for each indicator were divided into four equal parts (i.e., quartiles) unless otherwise stated. The computer software ArcGIS 9.2 was used to produce all the maps presented in the main document and technical report.
Data Suppression

To protect confidentiality, rates were suppressed where counts of SDOH data for each neighbourhood were less than 10, and where the three-year aggregate counts of health outcome data for each neighbourhood were less than 5.

Two neighbourhoods in the City of Guelph, namely Commercial Area and University, were excluded from the analysis. For Commercial Area, data were allocated to Exhibition Park, as there was only a small residential area within this neighbourhood. For University, data were suppressed by Statistics Canada due to data quality issues. Data for these two neighbourhoods were suppressed for all the maps presented in the main document and technical report.

All suppressed data are labelled as “Not reportable” on the maps presented in the main document and technical report.

Overall Ranking of Neighbourhoods

To summarize the findings, 65 out of 67 neighbourhoods were ranked based on eight selected SDOH indicators that were deemed to be most related to poverty and healthy child development (see Table 1). Two neighbourhoods located in the City of Guelph, namely University and Commercial area, were excluded from the overall ranking (as explained earlier in this section).

The neighbourhoods were first ranked for each SDOH indicator. Neighbourhoods with lower prevalence of each SDOH indicator were ranked lower in number. For example, a neighbourhood with the smallest proportion of immigrants was ranked as 1. Conversely, a neighbourhood with the highest proportion of immigrants was ranked 65. Thus, a higher rank in number indicates a neighbourhood may be more vulnerable to health inequities. Then, an overall ranking for each neighbourhood was calculated by summing the individual SDOH indicator scores, giving equal weight to all eight indicators. Figure 28 illustrates the overall ranking of neighbourhoods in the WWLHIN, dividing the neighbourhoods into five equal parts (i.e., quintiles), thus showing highest, middle, and lowest proportions. There are thirteen neighbourhoods in the highest quintile (i.e., highest 20% of the overall rank). The overall rankings synthesize the findings to identify priority neighbourhoods in the WWLHIN.

We would like to acknowledge the Code Red project, conducted by Centre for Spatial Analysis and McMaster University (Centre for Spatial Analysis and McMaster University, 2010), provided the concept of ranking neighbourhoods based on SDOH indicators.
Table 1 – Indicators used for overall ranking of neighbourhoods in the WWLHIN

<table>
<thead>
<tr>
<th>SDOH Indicators</th>
<th>Indicators at the Neighbourhood Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Proportion of persons in private households with low income after tax</td>
<td></td>
</tr>
<tr>
<td>• Proportion of children aged 6 years and under in private households with low income</td>
<td></td>
</tr>
<tr>
<td>• Proportion of average family income from government transfer payments</td>
<td></td>
</tr>
<tr>
<td>• Unemployment rate for individuals in the labour force aged 25 years and older</td>
<td></td>
</tr>
<tr>
<td>• Proportion of the population aged 25 to 64 years without completed high school education</td>
<td></td>
</tr>
<tr>
<td>• Proportion of families that were lone parent families</td>
<td></td>
</tr>
<tr>
<td>• Housing affordability (proportion of households that spent 30% or more of income on housing costs)</td>
<td></td>
</tr>
<tr>
<td>• Proportion of the population who were immigrants</td>
<td></td>
</tr>
</tbody>
</table>

Geocoding Methods for Health Outcome Indicators

Geocoding is the process of converting specific geographic locations to coordinates on a map. Different geocoding methods were used to assign health outcome case counts to each neighbourhood for the different PHU areas in the WWLHIN. The geocoding methods used for health outcome data were as follows:

- Wellington County (excluding the City of Guelph) – counts of cases were aggregated by recorded municipality of patient.
- City of Guelph – counts of cases were converted from recorded postal code of patient to custom-defined neighbourhoods using the most recent version of the PCCF+ from Statistics Canada (released October 2010); an automated system that assigns census geography based on postal code.
- Waterloo Region – counts of cases were converted from recorded postal code of patient to custom-defined neighbourhoods based on a one-to-one conversion file provided by Region of Waterloo Public Health.
- Municipalities of Southgate and West Grey – counts of cases were aggregated by recorded municipality of patient.
FINDINGS

Social Determinants of Health

SDOH are the conditions in which people are born, grow, live, work and age, including the health system (World Health Organization, 2011). They are closely intertwined with each other and “play a key role in determining the health status of the population as a whole” (Ontario Ministry of Health and Long-Term Care, 2008). Table 2 outlines specific indicators that correspond to poverty and healthy child development, as well as health outcomes. Findings for each of these indicators will be presented for the neighbourhoods within the WWLHIN boundaries.

Table 2 – Indicators of poverty and health child development†

<table>
<thead>
<tr>
<th>SDOH and Health Outcome Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Income</strong></td>
</tr>
<tr>
<td>• Individual and household income</td>
</tr>
<tr>
<td>• Low income status</td>
</tr>
<tr>
<td>• Children living in low income</td>
</tr>
<tr>
<td>households</td>
</tr>
<tr>
<td>• Government transfer payments</td>
</tr>
<tr>
<td>• Employment status</td>
</tr>
<tr>
<td><strong>Education</strong></td>
</tr>
<tr>
<td>• Without completed high school</td>
</tr>
<tr>
<td>• High school and higher education</td>
</tr>
<tr>
<td>levels</td>
</tr>
<tr>
<td>• Education level in special population groups</td>
</tr>
<tr>
<td><strong>Social and Community Support</strong></td>
</tr>
<tr>
<td>• Family and marital status</td>
</tr>
<tr>
<td>• Lone parent families</td>
</tr>
<tr>
<td>• Food security* (food bank use* and</td>
</tr>
<tr>
<td>cost of nutritious food basket*)</td>
</tr>
<tr>
<td>• Health service use and access*</td>
</tr>
<tr>
<td><strong>Housing</strong></td>
</tr>
<tr>
<td>• Housing affordability</td>
</tr>
<tr>
<td>• Housing ownership</td>
</tr>
<tr>
<td><strong>Early Child Development</strong></td>
</tr>
<tr>
<td>• Child care*</td>
</tr>
<tr>
<td>• Low birth weight*</td>
</tr>
<tr>
<td>• Breastfeeding*</td>
</tr>
<tr>
<td>• Early Development Instrument (EDI)*</td>
</tr>
<tr>
<td><strong>Immigration</strong></td>
</tr>
<tr>
<td>• Immigrant population and recent</td>
</tr>
<tr>
<td>immigrants</td>
</tr>
<tr>
<td>• Visible minority population</td>
</tr>
<tr>
<td>• Aboriginal population</td>
</tr>
<tr>
<td><strong>Health outcomes</strong></td>
</tr>
<tr>
<td>• Hospitalization rates for cardiovascular disease</td>
</tr>
<tr>
<td>• Hospitalization rates for injury</td>
</tr>
<tr>
<td>• Hospitalization rates for diabetes</td>
</tr>
<tr>
<td>• Mortality rates for lung cancer</td>
</tr>
</tbody>
</table>

†Original source for all SDOH indicators was the 2006 Census data provided by Statistics Canada to the MOHLTC and PHUs. Health outcome data were provided by the MOHLTC. Please refer to the Methodology section for more information.

*Data not available from the 2006 Census
Waterloo Wellington LHIN Geography

The Waterloo Wellington Local Health Integration Network (WWLHIN) is made up of Waterloo Region, Wellington County, and the southern tip of Grey County. Figure 1 shows a map of the WWLHIN boundary with its many neighbourhoods.

Figure 2 shows the three public health unit (PHU) areas within the WWLHIN. The three PHUs involved include Region of Waterloo Public Health, Wellington-Dufferin-Guelph Public Health, and Grey Bruce Health Unit. The entire Waterloo Region is part of the WWLHIN. However, only parts of the other two PHU areas are within the WWLHIN. They include Wellington County (which includes the City of Guelph), and the Municipality of Southgate and a small area of the Municipality of West Grey (both part of Grey County).

Waterloo Wellington LHIN Neighbourhoods

Table 3 lists the 67 neighbourhoods (made up of municipalities, townships, towns, and custom-defined neighbourhoods) that are included in the mapping of SDOH and health outcomes for the WWLHIN. Waterloo Region consists of 45 neighbourhoods, Wellington County consists of 7 municipalities as well as 13 neighbourhoods within the City of Guelph, and the portion of Grey County that is part of the WWLHIN includes the Municipality of Southgate and a small area of the Municipality of West Grey. The numbers given to each of the reporting areas in Table 3 correspond to the labelled neighbourhoods in Figure 3.

As mentioned in the Methodology section, data for two neighbourhoods in the City of Guelph, namely Commercial Area and University, were suppressed and not presented. All suppressed data are labelled as “Not reportable” on the maps presented in the main document and technical report. Please refer to the Methodology section for more information.
Figure 1 – WWLHIN boundaries

Legend

- LHIN Boundary
- Neighbourhood Boundary
- Municipality of West Grey Boundary*
- Highway 401

*Only part of the Municipality of West Grey is in the WWLHIN.

Figure 2 – Public health unit areas within the WWLHIN

Public Health Unit Area
- Southgate / West Grey*
- Wellington County
- Waterloo Region

*Municipalities of Southgate and West Grey are part of Grey County, and only part of the Municipality of West Grey is in the WWLHIN.

### Table 3 – Neighbourhood names in the WWLHIN (see corresponding Figure 3)

<table>
<thead>
<tr>
<th>Reporting Area (Municipality/Township/Town/Neighbourhood)</th>
<th>#</th>
<th>Reporting Area (Municipality/Township/Town/Neighbourhood)</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>--- WATERLOO REGION ---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>City of Cambridge</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blair</td>
<td>1</td>
<td>North Cambridge</td>
<td>6</td>
</tr>
<tr>
<td>Central Preston/Preston Heights</td>
<td>2</td>
<td>North Galt/Elgin Park</td>
<td>7</td>
</tr>
<tr>
<td>Galt City Centre/South Galt</td>
<td>3</td>
<td>Shades Mills</td>
<td>8</td>
</tr>
<tr>
<td>Hespeler</td>
<td>4</td>
<td>South East Galt</td>
<td>9</td>
</tr>
<tr>
<td>Langs/Industrial</td>
<td>5</td>
<td>Southwood/Southwest Galt</td>
<td>10</td>
</tr>
<tr>
<td><strong>City of Kitchener</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alpine/Laurentian</td>
<td>11</td>
<td>Grand River/Stanley Park/Chicopee</td>
<td>18</td>
</tr>
<tr>
<td>Bridgeport/Breithaupt/Mount Hope</td>
<td>12</td>
<td>Hidden Valley/Pioneer Tower</td>
<td>19</td>
</tr>
<tr>
<td>Country Hills/Huron Area</td>
<td>13</td>
<td>Highland West</td>
<td>20</td>
</tr>
<tr>
<td>Doon/Pioneer Park</td>
<td>14</td>
<td>Southwest Kitchener</td>
<td>21</td>
</tr>
<tr>
<td>Downtown Kitchener and Area</td>
<td>15</td>
<td>Vanier/Rockway</td>
<td>22</td>
</tr>
<tr>
<td>Forest Heights/Forest Hill/Lakeside</td>
<td>16</td>
<td>Victoria Hills/Cherry Hill/KW Hospital</td>
<td>23</td>
</tr>
<tr>
<td>Frederick/Rosemount/Auditorium</td>
<td>17</td>
<td>Westmount*</td>
<td>24</td>
</tr>
<tr>
<td><strong>City of Waterloo</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beechwood</td>
<td>25</td>
<td>Lincoln/Dearborn</td>
<td>30</td>
</tr>
<tr>
<td>Central Waterloo</td>
<td>26</td>
<td>West Waterloo</td>
<td>31</td>
</tr>
<tr>
<td>Columbia/Lakeshore</td>
<td>27</td>
<td>Westmount*</td>
<td>24</td>
</tr>
<tr>
<td>Eastbridge/Lexington</td>
<td>28</td>
<td>Westvale</td>
<td>32</td>
</tr>
<tr>
<td>Lakeshore North/Conservation</td>
<td>29</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Township of North Dumfries</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ayr</td>
<td>33</td>
<td>North Dumfries/Beverly</td>
<td>34</td>
</tr>
<tr>
<td><strong>Township of Wellesley</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wellesley Rural North</td>
<td>35</td>
<td>Wellesley Village</td>
<td>37</td>
</tr>
<tr>
<td>Wellesley Rural South</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Township of Wilmot</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baden</td>
<td>38</td>
<td>New Hamburg</td>
<td>40</td>
</tr>
<tr>
<td>New Dundee/Mannheim</td>
<td>39</td>
<td>North Wilmot</td>
<td>41</td>
</tr>
<tr>
<td><strong>Township of Woolwich</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elmira</td>
<td>42</td>
<td>Woolwich Rural East</td>
<td>44</td>
</tr>
<tr>
<td>St. Jacobs</td>
<td>43</td>
<td>Woolwich Rural North</td>
<td>45</td>
</tr>
<tr>
<td>--- WELLINGTON COUNTY ---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>City of Guelph</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brant Waverly</td>
<td>46</td>
<td>Onward Willow</td>
<td>53</td>
</tr>
<tr>
<td>Downtown/Sunny Acres/Old University</td>
<td>47</td>
<td>Parkwood Gardens</td>
<td>54</td>
</tr>
<tr>
<td>Commercial Area</td>
<td>48</td>
<td>Pine Ridge Clairfields Westminster Woods</td>
<td>55</td>
</tr>
<tr>
<td>Exhibition Park</td>
<td>49</td>
<td>Two Rivers/St. George’s Park</td>
<td>56</td>
</tr>
<tr>
<td>Grange Hill East</td>
<td>50</td>
<td>University</td>
<td>57</td>
</tr>
<tr>
<td>Hanlon Creek Hales Barton</td>
<td>51</td>
<td>West Willow Woods</td>
<td>58</td>
</tr>
<tr>
<td>Kortright Hills</td>
<td>52</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Wellington</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Township of Centre Wellington</td>
<td>59</td>
<td>Minto</td>
<td>63</td>
</tr>
<tr>
<td>Erin</td>
<td>60</td>
<td>Township of North Wellington</td>
<td>64</td>
</tr>
<tr>
<td>Township of Guelph/Eramosa</td>
<td>61</td>
<td>Township of Puslinch</td>
<td>65</td>
</tr>
<tr>
<td>Township of Mapleton</td>
<td>62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--- GREY COUNTY ---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipality of West Grey</td>
<td>66</td>
<td>Municipality of Southgate</td>
<td>67</td>
</tr>
</tbody>
</table>

*Westmount is a neighbourhood shared between the City of Kitchener and the City of Waterloo.
Figure 3 – WWLHIN neighbourhoods, by public health unit area (see corresponding Table 3)

* Municipalities of Southgate and West Grey are part of Grey County. Note that only part of the Municipality of West Grey is in the WWLHIN.

Waterloo Wellington LHIN Population

KEY FINDINGS

**Total WWLHIN population in 2006 – 679,375**
- The most populous neighbourhoods in the WWLHIN were Grand River/Stanley Park/Chicopee, Township of Centre Wellington, Forest Heights/Forest Hill/Lakeside, and Hespeler. They each had greater than 3% of the total WWLHIN population.
- Wellesley, Woolwich, Wilmot, and North Dumfries townships were less populous.

**Total child (ages 14 years and under) population in 2006 – 132,490**
- Among children there were more males (67,660) than females (64,830).
- Neighbourhoods with the highest proportion of children were Wellesley Rural North (32.5%), Township of Mapleton (28.2%), and Southwest Kitchener (27.7%).

**Total older adult (ages 65 years and over) population in 2006 – 78,630**
- Among older adults there were more females (43,585) than males (35,045).
- Neighbourhoods with the highest proportion of older adults were Exhibition Park and Central Waterloo at almost 22%, followed by Frederick/Rosemount/Auditorium, Westmount, North Cambridge, New Hamburg, and North Wellington, each representing approximately 18% of the total population.

List of Exhibits

Figure 4 – Population distribution by age and sex, WWLHIN, 2006

Figure 5 – Proportion of total population of the WWLHIN, by neighbourhood, 2006

Figure 6 – Proportion of the population aged 14 years and under, by neighbourhood, WWLHIN, 2006

Figure 7 – Proportion of the population aged 65 years and over, by neighbourhood, WWLHIN, 2006
**Waterloo Wellington LHIN Population**

In 2006, the total population for the WWLHIN was 679,375. The population for each PHU area is listed below:

- Waterloo Region – 473,330
- Wellington County – 198,255
- Municipality of Southgate and part of the Municipality of West Grey – 7,790

Figure 4 shows the distribution of males and females by age and sex in the WWLHIN. In 2006, the largest cohort in the WWLHIN population was those aged 40 to 49 years. There were 132,490 children aged 14 years and under in the WWLHIN, of which 67,660 were male and 64,830 were female. The total older adult population (ages 65 and over) in the WWLHIN was 78,630, of which 35,045 were male and 43,585 were female.

Maps on the following pages illustrate the population distribution by neighbourhood (Figure 5), the proportion of the population aged 14 years and under (Figure 6), and the proportion of the population aged 65 years and older (Figure 7).

**Figure 4 – Population distribution by age and sex, WWLHIN, 2006**

(Source: 2006 Census, Statistics Canada)
Figure 5 – Proportion of total population of the WWLHIN, by neighbourhood, 2006

Findings of Figure 5
Grand River/Stanley Park/Chicopee (5.2%), Township of Centre Wellington (3.8%), Forest Heights/Forest Hill/Lakeside (3.4%), and Hespeler (3.2%) represented the most populous neighbourhoods in the WWLHIN, each with greater than 3% of the total WWLHIN population. The least populated areas included Wellesley, Woolwich, Wilmot, and North Dumfries townships.
**Findings of Figure 6**

A higher proportion of children (14 years and under) lived in Wellesley Rural North (32.5%), followed by the Township of Mapleton (28.2%) and Southwest Kitchener (27.7%). A lower proportion of children lived in the neighbourhoods of Downtown/Sunny Acres/Old University (10.4%) and Central Waterloo (10.3%).
Findings of Figure 7
A higher proportion of older adults (aged 65 years and over) lived in the cities of Guelph, Kitchener, and Waterloo, Wilmot Township, and the northern parts of the WWLHIN. For both Exhibition Park and Central Waterloo, 22% of the population were aged 65 years and older, followed by Frederick/Rosemount/Auditorium, Westmount, North Cambridge, New Hamburg, and Township of North Wellington, each representing approximately 18% of the total population.
## Indicators of Income

### KEY FINDINGS

#### Individual and Household Income
- Males on average had higher income levels than females in the WWLHIN.
- The overall average private household income before tax in both Waterloo Region and Wellington County was higher than that of Ontario ($77,967). However, some neighbourhoods had average household incomes that were much lower.

#### Low Income Status
- In 2005, the proportion of families that had low income before tax in Waterloo Region (7.5%) and Wellington County (6.2%) was lower than that of Ontario (11.7%) and Canada (8.4%).
- In 2005, 6.4% of the population in Wellington County, 6.4% in the Municipality of West Grey, and 5.7% in the Municipality of Southgate was living with a low income after tax, which was lower than the prevalence rate in Ontario (11.1%).
- Areas with lower proportions of people in private households with low income in Waterloo Region were Wellesley, Wilmot, and Woolwich townships.

#### Children Living in Low Income Households
- Waterloo Region had a higher proportion of children (aged 6 years and under) living in low income private households compared to other areas of the WWLHIN.
- Eight neighbourhoods in the WWLHIN were in the highest quartile of children (aged 6 years and under) living in low income private households, which included Columbia/Lakeshore (17.7%), Victoria Hills/Cherry Hill/KW Hospital (16.7%), Downtown Kitchener and Area (15.9%), Onward Willow (13.9%), Vanier/Rockway (13.6%), Westmount (12.4%), Downtown/Sunny Acres/Old University (12.2%), and Central Waterloo (11.1%).

#### Government Transfer Payments
- One-quarter of neighbourhoods in the WWLHIN received government transfer payments that represented more than 10% of the total family income.
- Neighbourhoods with the highest proportion of the population receiving government transfer payments were Vanier/Rockway, Onward Willow, Victoria Hills/Cherry Hill/KW Hospital, Downtown Kitchener and Area, Exhibition Park, and Galt City Centre/South Galt. Each received government transfer payments representing more than 12% of the total family income.

#### Employment Status
- The unemployment rate in the WWLHIN was lower than the provincial rate in 2006.
- In the WWLHIN, females had a higher unemployment rate than males.
- The unemployment rate among recent immigrants (i.e., immigrants arriving between 2001 and 2006) in Waterloo Region was two times greater than the unemployment rate of the Canadian-born population or established immigrants.
- Neighbourhoods with highest unemployment rates (above 5%) in 2006 were Onward Willow, Victoria Hills/Cherry Hill/KW Hospital, Columbia/Lakeshore, Downtown Kitchener and Area, Vanier Rockway, and West Willow Woods.
List of Exhibits

Figure 8 – Average after-tax income of private households by health unit area, WWLHIN, 2005

Figure 9 – Proportion of persons in private households with low income after tax, by neighbourhood, WWLHIN, 2006

Figure 10 – Proportion of children aged 6 years and under in private households with low income after tax, by neighbourhood, WWLHIN, 2006

Figure 11 – Proportion of average family income from government transfer payments, by neighbourhood, WWLHIN, 2006

Figure 12 – Unemployment rate for individuals in the labour force aged 25 years and older, by neighbourhood, WWLHIN, 2006
Income

Individual and Household Income
In the WWLHIN, males on average had higher income levels than females. Specifically, in 2005, males in Waterloo Region earned an average before-tax income of $48,557 compared to $28,680 for females. Wellington County showed similar results; men earned an average before-tax income of $48,533 compared to $29,644 for women. These income levels for both sexes were slightly higher than those for all of Ontario, where the average income in 2005 for males was $46,962 and $29,712 for females (Ontario Trillium Foundation, 2008). However, in Grey Bruce, the overall average income was less than that of Ontario (Wonnacott & Ferguson, 2011). The “Grey Bruce Community Picture” examined median after-tax income for males and females. In the Municipality of West Grey, in 2005, the median after-tax income for males 15 years and over was $26,232, and $18,570 for females. In the Municipality of Southgate, in 2005, the median after-tax income for males 15 years and over was $29,505 and $16,684 for females. These amounts were lower than the provincial median after-tax income for males ($30,182) and females ($20,201) 15 years and over in 2005 (Wonnacott & Ferguson, 2011).

For families in Grey Bruce, the median after-tax income in 2005 was $53,306, which was lower than the Ontario median of $59,377 (Wonnacott & Ferguson, 2011). This was not the case for families living in Wellesley, Wilmot, and Woolwich townships where the median after-tax income was higher than the province as a whole (Woolwich Community Health Centre, 2010). Similarly, lone-parent families in these three townships had a higher median after-tax income than both Waterloo Region and Ontario (Woolwich Community Health Centre, 2010).

In 2005, the average private household income before tax in Waterloo Region and Wellington County was higher than that of Ontario ($77,967). Specifically, Waterloo Region had an average household income of $78,727 compared to $80,079 in Wellington County (Ontario Trillium Foundation, 2008). The average before-tax income for private households in 2005 in Waterloo Region was $78,727 compared to $80,079 in Wellington County. These medians were both higher than that for all of Ontario. The Township of Puslinch had a high average private household income before tax of $90,414 along with Erin ($85,615), the Township of North Dumfries ($84,055), and the Township of Guelph/Eramosa ($83,414) (Ontario Trillium Foundation, 2008).

Figure 8 illustrates the proportion of private households, in 2005, within different average after-tax income brackets in WWLHIN, including Waterloo Region, Wellington County, the Municipality of Southgate, and the area of the Municipality of West Grey that is part of the WWLHIN. Consistencies existed between Waterloo Region and Wellington County and the entire WWLHIN. The proportions of private households in the various income brackets differed for the Municipality of Southgate and the
portion of the Municipality of West Grey that is part of the WWLHIN. Deviations existed in the $20,000 to $49,999, $60,000 to $69,999, and $80,000 to $100,000 and over average after-tax income brackets.

Figure 8 – Average after-tax income of private households by public health unit area, WWLHIN, 2005

![Bar chart showing average after-tax income of private households by public health unit area, WWLHIN, 2005.](Source: 2006 Census, Statistics Canada)

**Low Income Status**

The proportion of families that had low income before tax in Waterloo Region and Wellington County, in 2005, was lower than that of Ontario (11.7%) and Canada (8.4%). The prevalence of low income before tax was 7.5% in Waterloo Region and 6.2% in Wellington County (Ontario Trillium Foundation, 2008; Tardiff, 2009). The prevalence of low income after tax in Waterloo Region was 5.5% and 4.5% in Wellington County (Ontario Trillium Foundation, 2008).

In 2005, in Wellington County, 6.4% of the overall population was living with low income after tax (Wellington-Dufferin-Guelph Public Health, 2010), which was the same for the entire Municipality of West Grey (6.4%). The Municipality of Southgate had a lower proportion, with 5.7% of all people who had low income status after tax. Comparatively, the prevalence in Ontario was higher, at 11.1% (Glenda Clarke and Associates, 2010; Wellington-Dufferin-Guelph Public Health, 2010).
In Waterloo Region, 10.2% of all people in private households experienced low income, a lower rate than both Ontario (14.7%) and Canada (15.3%) (Tardiff, 2009; Woolwich Community Health Centre, 2010). This prevalence was higher than in Wellesley, Wilmot, and Woolwich townships. Specifically, 8.8% of persons living in private homes in Wellesley Township had low income, compared to 3.6% in Wilmot Township and 4.0% in Woolwich Township (Woolwich Community Health Centre, 2010).

Figure 9 illustrates the prevalence of low income private households after tax, as well as findings at the neighbourhood level.

**Children Living in Low Income Households**

In 2006, 12.2% of children aged 18 years or under in Waterloo Region were living in a private home with low income, which was a higher rate than the 10.2% of all people in Waterloo Region living in private households with low income (Tardiff, 2009; Woolwich Community Health Centre, 2010). Wellesley Township had a similar proportion of 12.0%, which was three times higher than Wilmot Township (4.2%) and Woolwich Township (3.8%) (Tardiff, 2009; Woolwich Community Health Centre, 2010). The proportion of persons with low income aged 18 years or under in Wellington County was 7.0% in 2005 (Wellington-Dufferin-Guelph Public Health, 2010), which was lower than the Ontario rate of 13.7% (Glenda Clarke and Associates, 2010; Wellington-Dufferin-Guelph Public Health, 2010). In the Municipality of Southgate, 5.7% of persons aged 18 years and under were living with low income after tax, compared to 6.4% in the entire Municipality of West Grey (Glenda Clarke and Associates, 2010).

Figure 10 shows the prevalence of children (aged 6 years and under) in low income private households after tax, as well as findings at the neighbourhood level.

**Government Transfer Payments**

In Wellington County, in 2006, 8.5% of total population income was from government transfer payments (Wellington-Dufferin-Guelph Public Health, 2010). This proportion was lower than the Ontario rate of 9.8% (Glenda Clarke and Associates, 2010; Wellington-Dufferin-Guelph Public Health, 2010). In the same year, 14.2% of income was from government transfer payments in the Municipality of West Grey compared to 12.8% for the Municipality of Southgate (Glenda Clarke and Associates, 2010). These rates were also higher than the Ontario rate (9.8%) (Glenda Clarke and Associates, 2010; Wellington-Dufferin-Guelph Public Health, 2010).

In Waterloo Region, in 2006, government transfers represented an average of 10.2% of the total income for all families in 2006. The rate for Ontario was 11.2% (Region of Waterloo Public Health, 2010).

Figure 11 depicts the proportion of average family income that comes from government transfer payments for the WWLHIN, as well as findings at the neighbourhood level.
Figure 9 – Proportion of persons in private households with low income after tax, by neighbourhood, WWLHIN, 2006

Findings of Figure 9

Eight neighbourhoods in the WWLHIN had more than 10% of persons in private households with low income. These neighbourhoods included Columbia/Lakeshore (17.7%), Victoria Hills/Cherry Hill/KW Hospital (16.7%), Downtown Kitchener and Area (15.9%), Onward Willow (13.9%), Vanier/Rockway (13.6%), Westmount (12.4%), Downtown/Sunny Acres/Old University (12.2%), and Central Waterloo (11.1%).
Findings of Figure 10
Three neighbourhoods had a higher proportion of children living in low income households. These included Downtown Kitchener and Area (27.7%), Vanier/Rockway (25.7%), and Victoria Hills/Cherry Hill/KW Hospital (23.9%). Columbia/Lakeshore, Westmount, South East Galt, and Alpine Laurentian had proportions between 16.5% and 18.8%. All other neighbourhoods had proportions of 15.4% or less.
Figure 11 – Proportion of average family income from government transfer payments, by neighbourhood, WWLHIN, 2006

Findings of Figure 11
Approximately one-quarter of neighbourhoods in the WWLHIN received government transfer payments that represented more than 10% of the total family income. The top six neighbourhoods included Vanier/Rockway, Onward Willow, Victoria Hills/Cherry Hill/KW Hospital, Downtown Kitchener and Area, Exhibition Park, and Galt City Centre/South Galt, which received government transfer payments representing more than 12% of the total family income.
**Employment Status**

In 2006, all PHU areas within the WWLHIN had lower unemployment rates than Ontario (6.4%) and Canada (6.6%) (Ontario Trillium Foundation, 2008; Tardiff, 2009). The unemployment rate in Waterloo Region for people aged 25 years and over was 5.5%, which was higher than that for Wellington County (4.5%) (Ontario Trillium Foundation, 2008; Tardiff, 2009). The unemployment rates for the municipalities of Southgate and West Grey were also lower than the provincial rate, and were 4.7% and 3.1%, respectively (Ontario Trillium Foundation, 2008). These rates may not reflect the current unemployment status due to the recent world-wide economic recession.

In 2006, females had a higher rate of unemployment in Waterloo Region and Wellington County compared to males. In Waterloo Region, the unemployment rate for females was 5.9%, and 5.0% for males. Both of these rates were higher than the female and male unemployment rates in Wellington County, which were 5.1% and 4.0%, respectively (Ontario Trillium Foundation, 2008).

Figure 12 shows the unemployment rate for people aged 25 years and over was greater in urban areas. Findings are also presented at the neighbourhood level.

It is also important to consider the employment status among immigrants. For example, in Waterloo Region, in 2006, the employment rates among established immigrants (59%) and recent immigrants (i.e., immigrants arriving to the area between 2001 and 2006) (60%) were each lower than that of the Canadian-born population (71%). Furthermore, in 2006, the unemployment rate for recent immigrants was over twice (11%) the unemployment rate of the Canadian-born population (5%) or established immigrants (5%) (Workforce Planning Board of Waterloo, Wellington and Dufferin, 2009).

In some rural areas of the WWLHIN, unemployment rates in 2006 were low despite lower levels of high school completion (Woolwich Community Health Centre, 2010). For example, unemployment rates in the townships in Waterloo Region were lower than in all of Waterloo Region (5.5%) and Ontario (6.4%). The unemployment rate in Wellesley Township was lowest at 2.8%, compared to 3.5% in Woolwich Township and 3.9% in Wilmot Township. This difference could have been in part because of the higher population of Mennonites in the townships, who are known for their culture of strong work ethic (Woolwich Community Health Centre, 2010).

The youth (ages 15 to 24) unemployment rate in 2006 in Waterloo Region (12.2%) and Wellington County (10.2%) was lower than the provincial rate of 14.5%. However, these rates were higher than the rate of unemployment of people 25 years of age and older in Waterloo Region (4.0%) and Wellington County (3.3%) (Ontario Trillium Foundation, 2008).
Figure 12 – Unemployment rate for individuals in the labour force aged 25 years and older, by neighbourhood, WWLHIN, 2006

Findings of Figure 12
There was a higher rate of unemployment occurring in the urban areas. Six neighbourhoods showed an unemployment rate of over 5%. They included Onward Willow, Victoria Hills/Cherry Hill/KW Hospital, Columbia/Lakeshore, Downtown Kitchener and Area, Vanier Rockway, and West Willow Woods.
Indicators of Education

KEY FINDINGS

Population without Completed High School Education

- The proportion of people 15 years of age and older in Waterloo Region, who had not completed high school was 24.3%, which was slightly higher than for Ontario (22.2%).
- The proportion of people 15 years of age and older without a high school diploma was high in Wellesley (48.6%), Woolwich (33.6%), and Wilmot (24.0%) townships, and the municipalities of West Grey (31.6%) and Southgate (35.2%).
- In Waterloo Region, 15.6% of adults between 25 and 64 years of age did not have a high school diploma compared to 14.8% in Wellington County.
- Rural areas in the WWLHIN had higher proportions of people between 25 and 64 years of age without a high school diploma, including Wellesley Rural North (64.9%), Mapleton (38.1%), Woolwich Rural North (35.8%), Wellesley Rural South (27.7%), and Wellington North (26.1%).

Population with High School and Higher Education Levels

- In Waterloo Region, 58.1% of adults between 25 and 64 years of age completed post-secondary education, which was higher than the proportion in Wellesley (41.4%), Woolwich (53.4%), and Wilmot (57.6%) townships.
- In Wellington County, 58.5% of adults between 25 and 64 years of age completed post-secondary education.
- In the municipalities of Southgate and West Grey (i.e., the portion that is part of the WWLHIN), 43.1% of adults between 25 and 64 years of age completed post-secondary education.

Education Level in Special Population Groups

- Many Low German speaking Mennonites have low levels of education, as most children leave school by their fourteenth birthday.
- Recent immigrants often have higher education levels than the Canadian-born population.

List of Exhibits

Figure 13 – Proportion of the population aged 25 to 64 years without completed high school education, by neighbourhood, WWLHIN, 2006
Education

Without Completed High School Education

Among the three PHU area populations, there were differences between the education levels. In 2006, 24.3% of people 15 years of age or older had not completed high school in Waterloo Region. This rate was higher than that for the Ontario population (22.2%) (Woolwich Community Health Centre, 2010). Three of the townships in Waterloo Region had a similar or higher percentage of people 15 years and older who had not completed high school in 2006; Wilmot Township had 24.0%, while Woolwich and Wellesley townships had higher proportions, with 33.6% and 48.6%, respectively (Woolwich Community Health Centre, 2010). In 2006, the Municipality of Southgate had 35.2% and the Municipality of West Grey had 31.6% of the population 15 years of age or older who had not completed high school (Glenda Clarke and Associates, 2010).

In 2006, 15.6% of adults aged 25 to 64 years in Waterloo Region, had no high school certificate, diploma or degree compared to 14.8% in Wellington County (Ontario Trillium Foundation, 2008; Region of Waterloo, n.d. b; Tardiff, 2009; Wellington-Dufferin-Guelph Public Health, 2010). These rates, along with those of Wilmot Township (14.6%), were comparable to the proportion in Ontario (13.6%) (Wellington-Dufferin-Guelph Public Health, 2010; Woolwich Community Health Centre, 2010). In the same year, in Grey Bruce and Woolwich Township, close to one in five adults over the age of 25 did not complete high school (Wonnacott & Ferguson, 2011; Woolwich Community Health Centre, 2010). However, in Wellesley Township more than one-third (38.2%) of adults between 25 and 64 years of age had no high school diploma (Woolwich Community Health Centre, 2010).

To improve outcomes and opportunities for children and youth, one of the five goals of the Ontario Ministry of Children and Youth Services Strategic Framework states that “[e]very young person [should graduate] from secondary school” (Ontario Ministry of Children and Youth Services, 2008).

Figure 13 illustrates the proportion of adults aged 25 to 64 years without completed high school education, as well as findings at the neighbourhood level.

High School and Higher Education Levels

In 2006, in Ontario, 25.0% of adults between 25 and 64 years of age had a high school diploma or equivalent. Waterloo Region and Wellington County had similar proportions (26.4% and 26.5%, respectively) (Ontario Trillium Foundation, 2008; Woolwich Community Health Centre, 2010). These results were also comparable to the proportion of adults in Wilmot Township with a high school diploma, which was 26.6%. However, the proportion of adults with a high school diploma or equivalent was lower for adults in Woolwich and Wellesley townships, at 23.4% and 20.3%, respectively (Woolwich Community Health Centre, 2010).
In 2006, 61.4% of adults aged 25 to 64 years in Ontario completed post-secondary education (Woolwich Community Health Centre, 2010; MOHLTC, 2009, as cited in Wonnacott & Ferguson, 2011). This rate includes those adults receiving a university degree, certificate or diploma, a college or other non-university certificate or diploma, or an apprenticeship or trades certificate. The provincial proportion was slightly higher than in the municipalities of Southgate and West Grey (i.e., the portion that is part of the WWLHIN) (43.1%), Wellington County (58.5%), Waterloo Region (58.1%), and three of the townships within Waterloo Region. Wellesley Township had the lowest proportion of adults receiving any post-secondary education (41.4%) compared to 53.4% in Woolwich Township and 57.6% in Wilmot Township (Woolwich Community Health Centre, 2010). In Grey Bruce, 53% of adults aged 25 to 64 years had completed some post-secondary education (MOHLTC, 2009, as cited in Wonnacott & Ferguson, 2011).

For adults between 25 and 64 years of age, Waterloo Region had a slightly lower proportion of population who had obtained a university degree, certificate or diploma (26.5%), compared to Wellington County (28.7%). Each of these rates was lower than the 2006 Ontario rate (30.7%) (Ontario Trillium Foundation, 2008). For the proportion of adults aged 25 to 64 years of age with a college or other non-university certificate or diploma, Waterloo Region had a rate of 22.5%, which was slightly higher than the rate of 20.8% for Wellington County (Ontario Trillium Foundation, 2008). These rates were comparable to the Ontario rate of 22.0%. In Grey Bruce, a smaller proportion of people had college or university degrees than the province (Four County Labour Market Planning Board, 2010, as cited in Wonnacott & Ferguson, 2011).

In Ontario, in 2006, the proportion of the population who had an apprenticeship or trades certificate/diploma was 8.8% (Ontario Trillium Foundation, 2008). The rates for adults who had an apprenticeship or trades certificate/diploma in Waterloo Region and in Wellington County were 9.0% and 9.2%, respectively (Ontario Trillium Foundation, 2008). Education levels in Wellesley, Wilmot, and Woolwich townships in Waterloo Region were lower than the provincial levels, though there are local opportunities for apprenticeships (Kohler, 2008). Grey Bruce had a higher proportion of apprenticeship or trades certificates and of college and other non-university certificates than Ontario, likely due to the higher employment in farming and construction (Four County Labour Market Planning Board, 2010, as cited in Wonnacott & Ferguson, 2011).

**Education Level in Special Population Groups**

The Low German speaking Mennonite and recent immigrant populations have different education levels compared to the overall population in the WWLHIN. Mennonites in the WWLHIN primarily reside in Wellesley, Woolwich and Wilmot townships (Woolwich Community Health Centre, 2010), as well as parts of Wellington County, including the Township of Mapleton (Bennett, 2009). Mennonites
tend to have low levels of education, as most children leave school by their fourteenth birthday (Woolwich Community Health Centre, 2010). Many of the Low German speaking Mennonites emigrated from Mexico, where a majority of children typically receive no more than 8 years of schooling. When attending school in Canada, they typically attend no more than eleven years of school (Woolwich Community Health Centre, 2009). Thus, inadequate literacy and lower education levels within this population likely provide a barrier to finding employment and receiving a suitable income (Woolwich Community Health Centre, 2010).

In recent immigrant population, many often have higher education levels than the Canadian-born population. For example, in 2006, in Waterloo Region, 70% of recent immigrants had at least a bachelor’s degree compared to 40% of established immigrants and 27% of non-immigrants (Workforce Planning Board of Waterloo, Wellington and Dufferin, 2009).
Findings of Figure 13

The rural areas of Wellesley Rural North (64.9%), Township of Mapleton (38.1%), Woolwich Rural North (35.8%), Wellesley Rural South (27.7%), and the Township of North Wellington (26.1%) had higher proportions of the population without a high school diploma. This may in part be related to the sizeable Low German speaking Mennonite populations residing in these areas (Bennett, 2009; Woolwich Community Health Centre, 2010).
Indicators of Social and Community Support

<table>
<thead>
<tr>
<th>KEY FINDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family and Marital Status</strong></td>
</tr>
<tr>
<td>• The three PHU areas of the WWLHIN showed similar trends for marital status in 2006; approximately 55% of the population were married, while 30% were single, and 10% were divorced.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lone Parent Families</th>
</tr>
</thead>
<tbody>
<tr>
<td>• In the WWLHIN, more lone parent families were headed by a lone female parent (11%) compared to a lone male parent (3%). Rates of lone parent families for the municipalities of Southgate and West Grey were lower compared to Waterloo Region and Wellington County.</td>
</tr>
<tr>
<td>• Neighbourhoods with the highest proportions of families that were headed by lone parents were Onward Willow, Victoria Hills/Cherry Hill/KW Hospital, Alpine Laurentian, Vanier/Rockway, Downtown Kitchener and Area, and Two Rivers/St George’s Park.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Food Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Forty-five percent of children in Waterloo Region accessed food banks compared to 29% of children 14 years of age and under in Wellington County.</td>
</tr>
<tr>
<td>• The cost of the nutritious food basket in Wellington County in 2008 was lower than in Waterloo Region. However, the cost of the food basket has increased slightly over the past few years in all PHU areas of the WWLHIN, likely due to inflation. For example, in Wellington County the cost increased from $125.65 in 2003 to $137.54 in 2008.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>• In Grey Bruce, 87% of residents reported having a regular medical doctor compared to 92% in Wellington-Dufferin-Guelph. Residents of the City of Guelph were most likely to have a regular primary care provider (95%).</td>
</tr>
<tr>
<td>• Neighbourhoods with the highest average rates of all-cause emergency department visits per 100,000 people over three fiscal years (2007 to 2009) included the Municipality of West Grey (128,471), Township of North Wellington (95,999), Minto (89,343), and the Municipality of Southgate (84,545).</td>
</tr>
</tbody>
</table>
List of Exhibits

Figure 14 – Proportion of population by marital status and health unit area, WWLHIN, 2006

Table 4 – Proportion of families that were lone parent families, by sex of parent and number of children, by public health unit area, WWLHIN, 2006

Figure 15 – Proportion of families that were lone parent families, by neighbourhood, WWLHIN, 2006

Figure 16 – Three-year average emergency department visit rate (all cause) per 1,000 population, by neighbourhood, WWLHIN, 2007-2009, and location of health service providers within the WWLHIN
Social and Community Support

Family and Marital Status
In 2006, there were 133,725 census families in private households in Waterloo Region (Region of Waterloo, n.d. d) compared to 56,650 census families in Wellington County (Wellington-Dufferin-Guelph Public Health, 2010). Woolwich and Wellesley townships had slightly more families with children aged 6 years and under, compared to the Waterloo Region rate of 8.6%. Wilmot Township had slightly fewer families with children aged 6 years and under, as compared to Waterloo Region (Woolwich Community Health Centre, 2010).

The average family size in Waterloo Region was 3.0 persons in 2006. The average family sizes in Woolwich, Wellesley, and Wilmot townships were greater. Specifically, in Wellesley Township, the average number of people per census family was 3.7 compared to 3.2 in Woolwich Township, and 3.1 in Wilmot Township (Woolwich Community Health Centre, 2010).

There was an average of 2.1 children living at home per census family in Waterloo Region (Region of Waterloo, n.d. d). The average number of children at home in Wellington County was 1.2 children per census family (Wellington-Dufferin-Guelph Public Health, 2006; Wellington-Dufferin-Guelph Public Health, 2010).

Figure 14 illustrates the proportion of the total population by marital status and PHU area in the WWLHIN in 2006. All three PHU areas in the WWLHIN showed similar trends in the different categories for marital status, including legally married and common law, single, divorced or separated, and widowed. Approximately 55% of the population was married, while 30% was single, and 10% was divorced.

Figure 14 – Proportion of population by marital status and public health unit area, WWLHIN, 2006

(Source: 2006 Census, Statistics Canada)
Lone Parent Families

In 2006, 12% of families were headed by a lone female parent in Waterloo Region compared to 3% of families headed by a lone male parent (Region of Waterloo, n.d. d). In the townships in Waterloo Region, 5.5% of families in Wellesley Township were lone parent families, which was lower than the proportion of lone parent families in Wilmot Township (8.5%) and Woolwich Township (8.4%). All three townships had a much lower percentage of lone parent families than families in Waterloo Region (14.5%) and Ontario (15.8%) (Woolwich Community Health Centre, 2010). In 2006, 9.8% of families were led by a lone female parent and 2.9% were led by a lone male parent in Wellington County (Wellington-Dufferin-Guelph Public Health, 2010). In the City of Guelph, 16% of families were led by a lone parent (Public Interest Strategy and Communications Inc., 2011). In Grey Bruce, 9.6% of families in the Municipality of West Grey were led by a lone parent and 9.8% of families in the Municipality of Southgate were led by a lone parent (Glenda Clarke and Associates, 2010).

Table 4 provides the proportion of lone parent families and number of children in the three PHU areas of the WWLHIN. Rates were similar across these areas; however, the Municipality of Southgate and the portion of the Municipality of West Grey that is part of the WWLHIN had lower proportions of lone parent families than the other PHU areas. Figure 15 shows the proportion of families that were lone parent families by neighbourhood, as well as findings at the neighbourhood level.

### Table 4 – Proportion of families that were lone parent families, by sex of parent and number of children, by public health unit area, WWLHIN, 2006

<table>
<thead>
<tr>
<th>Family structure</th>
<th>WWLHIN</th>
<th>Southgate / West Grey</th>
<th>Waterloo Region</th>
<th>Wellington County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female lone parent families (1 child)</td>
<td>6.48%</td>
<td>4.70%</td>
<td>6.77%</td>
<td>5.86%</td>
</tr>
<tr>
<td>Female lone parent families (2 children)</td>
<td>3.29%</td>
<td>2.46%</td>
<td>3.50%</td>
<td>2.82%</td>
</tr>
<tr>
<td>Female lone parent families (3 or more children)</td>
<td>1.25%</td>
<td>0.67%</td>
<td>1.38%</td>
<td>0.97%</td>
</tr>
<tr>
<td>Total female lone parent families</td>
<td>11.07%</td>
<td>8.28%</td>
<td>11.67%</td>
<td>9.76%</td>
</tr>
<tr>
<td>Male lone parent families (1 child)</td>
<td>1.85%</td>
<td>0.67%</td>
<td>1.91%</td>
<td>1.76%</td>
</tr>
<tr>
<td>Male lone parent families (2 children)</td>
<td>0.67%</td>
<td>0.45%</td>
<td>0.68%</td>
<td>0.63%</td>
</tr>
<tr>
<td>Male lone parent families (3 or more children)</td>
<td>0.24%</td>
<td>0.00%</td>
<td>0.23%</td>
<td>0.27%</td>
</tr>
<tr>
<td>Total male lone parent families</td>
<td>2.81%</td>
<td>1.34%</td>
<td>2.81%</td>
<td>2.88%</td>
</tr>
<tr>
<td>Total lone parent families</td>
<td><strong>13.89%</strong></td>
<td><strong>9.40%</strong></td>
<td><strong>14.48%</strong></td>
<td><strong>12.64%</strong></td>
</tr>
</tbody>
</table>

(Source: 2006 Census, Statistics Canada)
Findings of Figure 15
Onward Willow (23.9%), Victoria Hills/Cherry Hill/KW Hospital (23.2%), Alpine Laurentian (22.2%), Vanier/Rockway (22.1%), Downtown Kitchener and Area (21.1%), and Two Rivers St George’s Park (20.1%) had over 20% of families that were headed by lone parents. Wellesley Rural North, Township of Mapleton, Wellesley Village, and Hidden Valley/Pioneer each had a proportion of less than 5% of families that were headed by lone parents.
**Food Security: Food Bank Use**

In 2008, between 39% and 40% of food bank users were children in Ontario (Tardiff, 2009; Spence, 2008, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-being of Children, 2009). This proportion was lower than the 45% of children in Waterloo Region who were accessing food banks (Food Bank of Waterloo Region, 2008, as cited in Tardiff, 2009), but higher than the 29% of children aged 14 years and under in Wellington County (United Way, 2007, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009). The increase in food bank use over the past years may be attributed to the increasing costs of food and fuel. This increase was observed at the Guelph Food Bank, where food bank usage increased 35% between 2005 and 2008 (Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2011; Ontario Association of Food Banks, Wellington County Data, 2005-2008, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-being of Children, 2009).

**Food Security: Cost of Nutritious Food Basket**

The Nutritious Food Basket is a tool that measures the cost of sixty-six basic healthy foods for a family of two parents and two children from the four food groups of Canada’s Food Guide to Healthy Eating (Bermingham, n.d.; Wonnacott & Ferguson, 2011). The cost of the Nutritious Food Basket increased over time in all PHU areas within the WWLHIN, likely due to inflation. In Waterloo Region the cost of a food basket increased from $120.78 in 2006 to $141.21 in 2008 (Bermingham, n.d.). In Wellington County the overall cost of a food basket was lower than in Waterloo Region in 2008. The cost of a food basket increased from $125.65 in 2003 to $137.54 in 2008 (Association of Local Public Health Agencies, 2009, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009). In 2010, the cost of the food basket in Wellington County was $170.73. The nutritious food basket in Grey Bruce in 2010 cost $166.64 per week, which was lower than for Ontario ($169.17) (Wonnacott & Ferguson, 2011). Note that 2010 prices should be compared with those from previous years with caution because of changes in definition and description of the nutritious food basket (Weekly Cost of Nutritious Food Basket, Ontario, 2010, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2011).
**Health Service Use and Access**

Most residents in the WWLHIN are able to access health services that are covered under the Ontario Health Insurance Plan (OHIP) (Wellington-Dufferin-Guelph Public Health, 2010). Health care service options include family physicians, urgent care clinics, walk-in/after-hours clinics, community health centres, education programs, screening centres, family health teams, nurse practitioner led clinics, public health units, and hospitals. Nevertheless, individuals may experience several barriers to accessing such services. For example, not being able to speak English can greatly affect an individual’s access to the available services (Wellington-Dufferin-Guelph Coalition for a Report Card on the Wellbeing of Children, 2009).

Figure 16 illustrates the total number of ED visits, by neighbourhood, in the WWLHIN, as well as the location of health service providers identified by the WWLHIN (note that not all health service providers in the WWLHIN are shown). Neighbourhoods with higher proportions of ED visits may reflect the unique organization of health services in rural communities. For example, emergency departments are often staffed by physicians who are also family practitioners in the same community. As a result, it is not unusual for physicians to arrange for some of their rostered patients to be seen in the emergency department. In these situations, those visits are being captured as ED visits, even though they are actually scheduled primary care appointments.

According to the 2008 Canadian Community Health Survey (CCHS), 92% of residents in Wellington-Dufferin-Guelph reported that they had a regular medical doctor, which was slightly higher than in Ontario (90.8%) (Wellington-Dufferin-Guelph Public Health, 2010). In the City of Guelph, 95% of the population had access to a primary care provider (Public Interest Strategy and Communications Inc., 2011) while Wellington County was considered to be under-serviced for family doctors (Wellington-Dufferin-Guelph Public Health, 2006). In Grey Bruce, according to the 2007/2008 CCHS results, 87% of residents reported having a regular medical doctor, which was a lower proportion than in Wellington County (McFarland & Leffley, 2010).
Figure 16 – Three-year average emergency department visit rate (all cause) per 100,000 population, by neighbourhood, WWLHIN, 2007-2009, and location of health service providers within the WWLHIN

Findings of Figure 16
Neighbourhoods with the highest average rates of all-cause ED visits per 100,000 people over three fiscal years (2007 to 2009) included the Municipality of West Grey (128,471), Township of North Wellington (95,999), Minto (89,343), and the Municipality of Southgate (84,545). Some areas in the cities of Cambridge, Kitchener, and Guelph also had higher rates of all-cause ED visits.
Indicators of Housing

KEY FINDINGS

Housing Affordability

- The majority of neighbourhoods in the WWLHIN had 20% or more of households spending at least 30% of their income on housing.
- Areas with a lower proportion of households spending 30% or more of income on housing payments were Wellesley, Wilmot, and Woolwich townships.

Home Ownership

- The urban centres of Kitchener, Waterloo, Cambridge, and Guelph had neighbourhoods with higher proportions of dwellings that were not owned, compared to rural areas of the WWLHIN.
- A greater proportion of residents in Waterloo Region (29.3%) did not own their own home, compared to the Municipality of Southgate (11.9%) and the portion of the Municipality of West Grey that is within the WWLHIN (less than 10%).
- Neighbourhoods with more than 50% of dwellings that were not owned were Columbia/Lakeshore, Vanier/Rockway, Downtown Kitchener and Area, Onward Willow, Victoria Hills/Cherry Hill/KW Hospital, and Downtown/Sunny Acres/Old University.

List of Exhibits

Figure 17 – Proportion of tenant and owned households that spent 30% or more of their income on housing costs, by neighbourhood, WWLHIN, 2006

Figure 18 – Proportion of the population who resided in a non-owned dwelling, by neighbourhood, WWLHIN, 2006
Housing

Housing Affordability

In 2006, 44.3% of individuals who were renting their home spent more than 30% of their gross monthly income on housing costs in Ontario (Statistics Canada, 2009a; Tardiff, 2009). This percentage was higher than that of the WWLHIN. Specifically, in the Kitchener-Cambridge-Waterloo Census Metropolitan Area (CMA), 39.2% of tenant households spent 30% or more of their gross household income on rent, and 16.3% spent 50% or more of their income on rent (Statistics Canada, 2011). Twenty percent of renting households in Wellesley Township, 25% in Wilmot Township, and 29% in Woolwich Township spent more than 30% of their income on major household payments (Woolwich Community Health Centre, 2010). In the Guelph CMA, 41.2% of tenant households spent equal to or more than 30% of their income on rent, and 18.0% spent 50% or more of their income on rent (Statistics Canada, 2011). As people spend more of their income on housing costs, they may have difficulties paying for basic needs, including heat in the winter months, healthy and nutritious foods, or clothing. The risks may grow with worldwide economic instability.

In the Kitchener-Cambridge-Waterloo CMA, 16.7% of homeowners spent 30% or more of their household income on major payments, and 5.3% spent 50% or more of their income on payments (Statistics Canada, 2011). Residents of the towns of Wellesley, Wilmot, and Woolwich on average spent less (13%) than the Kitchener-Cambridge-Waterloo CMA on major household payments. (Woolwich Community Health Centre, 2010). The Guelph CMA showed higher rates, where 18.3% of owners spent 30% or more of their household income on major payments, and 5.7% spent 50% or more of their income on payments (Statistics Canada, 2011). These percentages were lower than the Ontario average of 20.8% of homeowners who spent 30% or more of their gross monthly income on housing costs (Statistics Canada, 2009a; Tardiff, 2009). These rates were also lower than the rates among tenant households in WWLHIN. Figure 17 illustrates the proportion of tenant and owned households that spent 30% or more of their income on housing by neighbourhood, as well as findings at the neighbourhood level.

Housing Ownership

In the entire Municipality of West Grey, 15.8% of the population did not own their home compared to 11.9% in the Municipality of Southgate (Glenda Clarke and Associates, 2010). Within the area of the Municipality of West Grey that is part of the WWLHIN, less than 10% did not own their home (see Figure 18). This proportion was lower than that for residents of Waterloo Region who did not own their own home (29.3%). All of these local rates were lower than the Canadian average (31.2%) (Tardiff, 2009). The percentage of households renting in Waterloo Region decreased between 2001 and 2006, while the rate of homeownership in Waterloo Region increased by 16%, even though housing prices had risen (Region of Waterloo, n.d. a). However, some new homeowners may be spending more than 30% of income on housing costs to maintain ownership.
Figure 17 – Proportion of tenant and owned households that spent 30% or more of their income on housing costs, by neighbourhood, WWLHIN, 2006

Findings of Figure 17
Just over half the neighbourhoods in the WWLHIN had 20% or more of households spending 30% or more of their income on housing. All of these neighbourhoods are located in urban areas. Columbia/Lakeshore, Victoria Hills/Cherry Hill/KW Hospital, Downtown Kitchener and Area, and Downtown/Sunny Acres/Old University, each had over 30% of households that spent 30% or more of their income on housing costs.
Findings of Figure 18
The urban centres of Kitchener, Waterloo, Cambridge, and Guelph had higher proportions of non-owned dwellings. Columbia/Lakeshore, Vanier/Rockway, Downtown Kitchener and Area, Onward Willow, Victoria Hills/Cherry Hill/KW Hospital, and Downtown/Sunny Acres/Old University neighbourhoods each had more than 50% of dwellings that were not owned.
Indicators of Early Child Development

KEY FINDINGS

Child Care

• In the City of Guelph and the rest of Wellington County, 73% and 75%, respectively, of mothers with children under 6 years of age were working, compared to 93% and 97% of fathers.
• According to the 2007 KPS in Waterloo Region, 71.5% of respondents (mostly women) were working between 10 and 34 hours per week, and 4% reported that their workplace offered child care.
• In Waterloo Region and Wellington County, child care spaces were limited compared to the number of spaces that were actually needed.

Low Birth Weight

• The rates for low birth weight in Waterloo Region, Wellington County, and Grey Bruce were lower than the rates for Ontario (6.4%) and Canada (6.1%).

Breastfeeding

• In Waterloo Region, 65% of mothers were breastfeeding their infant at time of hospital discharge.
• In Wellington County (and Dufferin), 89% of mothers were breastfeeding their child in the first two weeks following birth.
• In Grey Bruce, 86% of mothers initiated breastfeeding, even if only for a short while.

Early Development Instrument (EDI)

• The average EDI scores for each of the five domains were slightly different across the PHU areas of the WWLHIN, though comparable to the Ontario baseline scores.
• In Wellington County*, neighbourhoods with the highest proportion of vulnerable senior kindergarten children included Minto (25.8%), Two Rivers/St. George’s Park (22.2%), Onward Willow (20.0%), and Brant Waverly (19.8%). All other neighbourhoods had proportions less than 17.4%.
• In Waterloo Region**, neighbourhoods with the highest proportion (approximately 32%) of vulnerable senior kindergarten children included Victoria Hills/Cherry Hill/KW Hospital and North Galt/Elgin Park. All other neighbourhoods had proportions less than 28.0%.

*excludes children with special needs
**includes children with special needs
List of Exhibits

Table 5 – Average Early Development Instrument (EDI) scores of five year old children, by health unit area, WWLHIN and Ontario, 2003 to 2008

Table 6 – Proportion of senior kindergarten children who scored below the 10th percentile for each Early Development Instrument domain, by health unit area, WWLHIN, 2006, 2007

Figure 19 – Proportion of senior kindergarten children who were vulnerable in two or more Early Development Instrument (EDI) domains, Wellington County, 2006

Figure 20 – Proportion of senior kindergarten children who were vulnerable in two or more Early Development Instrument (EDI) domains, Waterloo Region, 2007
Early Child Development

Child Care
According to the 2006 Census, 73% and 75% of mothers in the City of Guelph and the rest of Wellington County, respectively, were working. More fathers were working, with 93% in the City of Guelph and 97% in Wellington County participating in the work force (Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009). In Waterloo Region, the 2007 KPS showed that 71.5% of respondents, the majority of whom were mothers or female caregivers, reported that they were working 10 to 34 hours per week. Of those who were not single parents, 93.5% of the respondents’ partners were working 40 hours or more per week (Tardiff, 2009).

With so many working parents, children who are not yet old enough to attend school need some form of child care. Family friendly workplace policies can help to alleviate the stress of work/life balance for parents. For example, the 2007 KPS survey in Waterloo Region showed that 44% of parents or caregivers were provided with alternative working arrangements from their employers, such as flex-time, job-sharing or working at home (Tardiff, 2009). Just over 4% responded that their workplace offered a child care centre (Tardiff, 2009).

According to the 2006 KPS survey administered in Wellington County (excluding Guelph), many parents used some form of child care when their children were less than 6 years old. In the City of Guelph, 69% of children between the ages of 2 and 4 years, and 68% of children between the ages of 4 and 6 years attended some form of day care. The percentages in Wellington County were slightly lower, where 61% of children between 2 and 4 years of age, and 58% of children between 4 and 6 years of age attended child care (Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009). Child care spaces in Waterloo Region and Wellington County were limited compared to the number of spaces that were actually needed (Tardiff, 2009; Community Services Team, County of Wellington Child Care Services, 2008, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009). For example, in the City of Guelph there were only enough child care spaces available for 14% of the total population aged 6 years and under in 2008. The rest of Wellington County had a lower proportion (7%) of spaces available for the population in this age group (Community Services Team, County of Wellington Child Care Services, 2008, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009). Cost, quality of care, and the availability of spaces were the main concerns of parents in Wellington County, according to the KPS (Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009).

Apart from child care, children need positive environments for healthy growth and development. A positive parenting approach can help to create a more supportive environment for their child’s development. The 2007 KPS survey in Waterloo Region indicated that of parents and caregivers who responded, 93% laughed with their child, 92% praised their child, and 75% played with their child (Tardiff, 2009).
**Low Birth Weight**

Infants weighing 2,500 grams or less at the time of birth are considered to have low birth weight. The proportion of babies that had low birth weight were similar across the WWLHIN, and were lower than the rates for Ontario (6.4%) and Canada (6.1%) (Canadian Institute for Health Information, 2009, as cited in Tardiff, 2009). Between 2003 and 2007, the average percentage of low birth weight babies was slightly higher than 5% in the City of Guelph and 4.8% in Wellington County (excluding the City of Guelph) (Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009). In Waterloo Region, 5.7% of babies born in 2007 had low birth weight (Region of Waterloo Public Health HBHC ISCIS report, 2007, as cited in Tardiff, 2009). Finally, in Grey Bruce, between 2000 and 2003, 5.7% of live births had low birth weight (Leffley, 2007, as cited in Wonnacott & Ferguson, 2011).

**Breastfeeding**

In Waterloo Region, in 2007, the Healthy Babies Healthy Children Postpartum Assessment showed that 65% of mothers were breastfeeding their infant at time of hospital discharge (Region of Waterloo Public Health HBHC ISCIS report, 2007, as cited in Tardiff, 2009). In Grey Bruce, according to the 2007/2008 CCHS, 86% of mothers breastfed their babies, even if only for a short while. In both Ontario and Canada, 25% of mothers continued to breastfeed their infants after six months (McFarland & Leffley, 2010). In Wellington County and the City of Guelph (and Dufferin), the 2009 Feeding Choices in Our Community Survey showed that 89% of respondents provided their infants with breast milk in the first two weeks following birth, while only 49% were still breastfeeding their child after six months. The survey also demonstrated that breastfeeding intention rates were often high, with 90% of women intending to breastfeed. However, two months following birth, more than one-fifth of women who intended to breastfeed had stopped. Breastfeeding cessation or supplementation increased mainly because of the perception of poor milk supply. (Wellington-Dufferin-Guelph Public Health, 2009).

**Early Development Instrument**

The Early Development Instrument (EDI) is a valid and reliable tool that measures school readiness to learn of senior kindergarten children, and has “been shown to have a high predictive validity of later school outcomes” (Janus et al, 2007, as cited in Tardiff, 2009; Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009). EDI data are collected for children from their senior kindergarten teachers through a survey. The survey gathers information about healthy child development that is divided into five domains, which include physical health and well-being, social competence, emotional maturity, language and cognitive skills, and communication and general knowledge (Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009).
Average EDI Scores in Each Domain

Some differences in average EDI scores excluding children with special needs (with a maximum score of 10) for each of the five domains were seen within the WWLHIN geographic area (see Table 5). When comparing each PHU area to the 2003-2006 Ontario baseline, there was only a slight variability in some of the EDI domains. The average 2006/2007 EDI scores in Wellington County and the City of Guelph were similar to Ontario’s baseline, except for the physical health and well-being and communication and general knowledge domains, which scored lower in Wellington County (Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009). Waterloo Region’s 2006/2007 EDI results showed lower average scores in the domain of communication and general knowledge (Tardiff, 2009; A. Romagnoli, personal communication, June 28, 2011; Glenda Clarke and Associates, 2010). For Grey Bruce, the physical health and well-being domain was lower, while the language and cognitive development domain was higher than the 2003-2006 Ontario baseline (Glenda Clarke and Associates, 2010).

Table 5 – Average Early Development Instrument (EDI) scores of five year old children, by public health unit area, WWLHIN and Ontario, 2003 to 2008

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Health &amp; Well-Being</td>
<td>8.9</td>
<td>8.7</td>
<td>8.8</td>
<td>8.7</td>
<td>8.9</td>
</tr>
<tr>
<td>Social Competence</td>
<td>8.3</td>
<td>8.3</td>
<td>8.3</td>
<td>8.4</td>
<td>8.5</td>
</tr>
<tr>
<td>Emotional Maturity</td>
<td>8.1</td>
<td>8.1</td>
<td>8.0</td>
<td>8.2</td>
<td>8.1</td>
</tr>
<tr>
<td>Language and Cognitive Development</td>
<td>8.6</td>
<td>8.9</td>
<td>8.5</td>
<td>8.6</td>
<td>8.6</td>
</tr>
<tr>
<td>Communication and General Knowledge</td>
<td>7.8</td>
<td>7.8</td>
<td>7.6</td>
<td>7.5</td>
<td>7.8</td>
</tr>
</tbody>
</table>

*Findings exclude children with special needs
Note: Results should be compared with caution due to different time periods that EDI was administered.
Trends in Average EDI Scores in Each Domain
When observing trends over time for average EDI scores (excluding children with special needs), differences were noted in each WWLHIN PHU area. The average EDI scores between 2003/2004 and 2006/2007 decreased in Waterloo Region in the domains of physical health and well-being, social competence, emotional maturity, and communication and general knowledge (Tardiff, 2009). The domains of physical health and well-being and communication and general knowledge showed the greatest differences. Waterloo Region’s average score for language and cognitive development remained the same between 2003/2004 and 2006/2007 (Tardiff, 2009). The City of Guelph demonstrated a decrease in physical health and well-being, social competence, emotional maturity, and communication and general knowledge between 2006/2007 and 2009/2010. The average scores in the City of Guelph for language and cognitive skills increased only slightly (L. Bestari, personal communication, July 4, 2011). In contrast, Wellington County (excluding Guelph) showed improvements over time. Between 2006/2007 and 2009/2010, the two domains of physical health and well-being and communication and general knowledge increased, while the average scores for the remaining three domains remained relatively stable. For all of Grey Bruce, children demonstrated an increase in average scores in all five domains between 2004/2005 and 2007/2008 (Glenda Clarke and Associates, 2010).

Proportion of Children who Scored Low in Each EDI Domain
Children who score below the tenth percentile on one or more of the five EDI domains are at a “higher risk” of negative developmental outcomes in that domain (Tardiff, 2009). In Waterloo Region, Wellington County, and the City of Guelph, the proportion of children scoring in the bottom 10% was similar in each EDI domain (see Table 6). However, there were greater differences seen across the three areas in the physical health and well-being domain. A higher proportion of children in Waterloo Region were below the tenth percentile in physical health and well-being.

Table 6 – Proportion of senior kindergarten children who scored below the 10th percentile for each Early Development Instrument domain, by public health unit area, WWLHIN, 2006, 2007

<table>
<thead>
<tr>
<th>Domain</th>
<th>% below 10th percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Health &amp; Well-Being</td>
<td>14%</td>
</tr>
<tr>
<td>Social Competence</td>
<td>10%</td>
</tr>
<tr>
<td>Emotional Maturity</td>
<td>12%</td>
</tr>
<tr>
<td>Language and Cognitive Development</td>
<td>11%</td>
</tr>
<tr>
<td>Communication and General Knowledge</td>
<td>14%</td>
</tr>
</tbody>
</table>

*Findings exclude children with special needs
*Data not available for Grey Bruce
**Proportion of Children who were Vulnerable**

Figures 19 and 20 illustrate the proportion of children scoring below the tenth percentile in two or more domains at the neighbourhood level in Wellington County and Waterloo Region, respectively. The proportion of children who score in the bottom 10% in two or more of the five EDI domains is a measure of “vulnerability,” which means that children with lower EDI scores tend to have more difficulty catching up in school as years pass (Tardiff, 2009; Janus, 2008, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009; Yao & Brown, 2007, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009). Vulnerability results between Wellington County and Waterloo Region must be compared with caution due to different inclusion criteria: Waterloo Region data included special needs children, while Wellington County did not. The Offord Centre for Child Studies plans to release the average EDI scores (excluding children with special needs) for Ontario at a neighbourhood level in 2011 at the following website: [http://www.offordcentre.com/readiness/reports.html](http://www.offordcentre.com/readiness/reports.html). When those data are released, average neighbourhood EDI scores in all areas of the WWLHIN can be more easily compared.
Findings of Figure 19
Four neighbourhoods in Wellington County had higher proportions of senior kindergarten children (excluding children with special needs) who were vulnerable (i.e., scoring below the tenth percentile) in two or more EDI domains. They included Minto (25.8%), Two Rivers/St. George’s Park (22.2%), Onward Willow (20.0%), and Brant Waverly (19.8%). All other neighbourhoods had proportions less than 17.4%.

*Findings exclude children with special needs. Townships of Puslinch and Guelph/Eramosa were merged due to low counts.

Figure 20 – Proportion of senior kindergarten children who were vulnerable in two or more Early Development Instrument (EDI) domains, Waterloo Region, 2007

Findings of Figure 20
Five neighbourhoods in Waterloo Region had higher proportions of senior kindergarten children (including children with special needs) who were vulnerable (i.e., scoring below the tenth percentile) in two or more EDI domains. They included Victoria Hills/Cherry Hill/KW Hospital (32.2%), North Galt/Elgin Park (31.6%), Vanier/Rockway (28.1%), Bridgeport/Breithaupt/Mount Hope (27.7%), and Downtown Kitchener and Area (27.4%). All other neighbourhoods had proportions less than 27.0%.
Indicators of Immigration

KEY FINDINGS

Immigrant Population
- In Waterloo Region, 22.3% of the total population was foreign-born, compared to 17.0% in Wellington County, 10.2% in the Municipality of Southgate, and 4.1% of the population in the Municipality of West Grey that is part of the WWLHIN.
- The WWLHIN has a population of Low German speaking Mennonite families originating from Mexico. The townships of Mapleton, Wellesley, Wilmot, and Woolwich have large Mennonite populations.
- Neighbourhoods with the highest proportion of immigrants (more than 30% of the population) were Highland West, Victoria Hills/Cherry Hill/ KW Hospital, Southwest Kitchener, West Waterloo, and Vanier/Rockway.

Recent Immigrant Population
- Of the total immigrant population in the WWLHIN, 17.6% were recent immigrants (i.e., arrived to the area between 2001 and 2006).
- Of the total immigrant population in Waterloo Region, 16.2% were recent immigrants compared to 13.7% in Wellington County and 3.3% in the municipalities of Southgate and West Grey (i.e., the part that is within the WWLHIN).

Visible Minority Population
- In the Kitchener-Cambridge-Waterloo Census Metropolitan Area (CMA), 13.8% of the population was a visible minority.
- In the City of Guelph, 14% of the population was a visible minority compared to 2% in the rest of Wellington County.
- In Grey Bruce, fewer (less than 2%) visible minorities resided in the municipalities of Southgate and West Grey.

Aboriginal Population
- Neighbourhoods with the highest percent of Aboriginal people (over 2%) were the Municipality of Southgate and Downtown Kitchener and Area.

List of Exhibits

Figure 21 – Proportion of the population who were immigrants, by neighbourhood, WWLHIN, 2006

Figure 22 – Proportion of the population who immigrated to Canada within the past five years, by neighbourhood, WWLHIN, 2006

Figure 23 – Proportion of the population who were a visible minority, by neighbourhood, WWLHIN, 2006
Immigration

Immigrant Population
Cities within the WWLHIN had higher proportions of people who were immigrants. In Waterloo Region, 22.3% of the total population in 2006 was foreign-born, with many of these families and individuals settling in the cities of Cambridge, Kitchener, and Waterloo rather than in the four rural townships (Ontario Trillium Foundation, 2008; Region of Waterloo, n.d. e). In 2006, 17.0% of the population in Wellington County was made up of people who were not born in Canada (Ontario Trillium Foundation, 2008). Excluding Guelph, 11.4% of the population of Wellington Country were immigrants, while 21.1% of the population in the City of Guelph were immigrants (Wellington-Dufferin-Guelph Public Health, 2010; Wellington-Dufferin-Guelph Public Health, 2011). A smaller proportion of the population were immigrants in the Municipality of Southgate and the Municipality of West Grey that is part of the WWLHIN, as compared to the rest of the WWLHIN. Specifically, 10.2% of the population in the Municipality of Southgate were immigrants compared to 4.1% of the population in the Municipality of West Grey that is part of the WWLHIN. Figure 21 illustrates the proportion of the population who were immigrants, as well as findings at the neighbourhood level.

It is also important to consider the Mennonite population in the WWLHIN, as approximately 35% of the Ontario Mennonite population lives within the WWLHIN’s boundaries (Woolwich Community Health Centre, 2010). In Wellington County, 26% of the new immigrants were from Central America (mostly Mexico). Most of these immigrants were Low German speaking Mennonites and had settled in the Township of Mapleton (Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009). In Waterloo Region, specifically Wellesley, Wilmot, and Woolwich townships, there was also a high Mennonite population. Approximately 81% of the Mennonites in the WWLHIN resided in these townships, of which Wellesley Township had the highest percentage (42.6%), followed by Woolwich Township (21.7%), and Wilmot Township (10.7%) (Woolwich Community Health Centre, 2010). The municipalities of Southgate and West Grey had some Amish and Mennonite communities, but exact numbers are not known (Wonnacott & Ferguson, 2011).

Recent Immigrant Population
In 2006, 17.6% of the total immigrant population in the WWLHIN were recent immigrants (i.e., arrived to the area between 2001 and 2006). Of the total immigrant population in Waterloo Region, 16.2% were recent immigrants compared to 13.7% in Wellington County. Excluding the City of Guelph, 9.1% of the total immigrant population in Wellington County were recent immigrants compared to 15.8% in the City of Guelph (Wellington-Dufferin-Guelph Public Health, 2010; Wellington-Dufferin-Guelph Public Health, 2011). Similarly, 3.3% of the total immigrant population in the municipalities of Southgate and West Grey (i.e., the part that is within the WWLHIN) were recent immigrants. However, out of the total population, 0.28% and 0.33% were recent immigrants in the municipalities of Southgate and West Grey, respectively (Glenda Clarke and Associates, 2010). Figure 22 illustrates the proportion of the immigrant population who immigrated to Canada between 2001 and 2006, as well as findings at the neighbourhood level.
Findings of Figure 21

Five neighbourhoods had greater than 30% of the population who are immigrants, including Highland West (38.6%), Victoria Hills/Cherry Hill/ KW Hospital (33.1%), Southwest Kitchener (32.3%), West Waterloo (31.7%), and Vanier/Rockway (30.8%). The portion of the Municipality of West Grey that is part of the WWLHIN and Wellesley Rural North both had less than 5%.
Findings of Figure 22
Ten neighbourhoods had greater than 20% of the immigrant population who were recent immigrants (i.e., arrived in the area between 2001 and 2006). They included Onward Willow (37.5%), Victoria Hills/Cherry Hill/KW Hospital (33.4%), Columbia/Lakeshore (29.7%), Vanier/Rockway (28.6%), Township of Mapleton (27.6%), West Waterloo (26.7%), Alpine/Laurentian (24%), Ayr (22.5%), Downtown Kitchener and Area (21.3%), and Westmount (20.2%).
Visible Minority Population

The visible minority population rate varies between neighbourhoods within the WWLHIN (see Figure 23). For example, approximately 2% of the population in Wellington County (excluding Guelph) was a visible minority (Wellington-Dufferin-Guelph Public Health, 2011; Wellington-Dufferin-Guelph Public Health, 2010), while almost 14% of the population in the City of Guelph was a visible minority (Wellington-Dufferin-Guelph Public Health, 2011). In the Kitchener-Cambridge-Waterloo Census Metropolitan Area (CMA), 13.8% of the population was a visible minority (Statistics Canada, 2009b). In Grey Bruce, less than 2% of visible minorities resided in the municipalities of Southgate and West Grey (Glenda Clarke and Associates, 2010; Wonnacott & Ferguson, 2011).

The types of ethnic groups living in the WWLHIN were similar across the PHU areas. They included South Asian, Chinese, Filipino, Black, Latin American, and Southeast Asian people (Wellington-Dufferin-Guelph Public Health, 2011; Ontario Trillium Foundation, 2008). In Wellington County, 24.1% of the visible minority population was South Asian, while 19.1% were Chinese, 11.9% were Filipino, 10.4% were Black, and 9.9% were Southeast Asian (Ontario Trillium Foundation, 2008). In Waterloo Region, South Asian residents made up 26.5% of the visible minority population. In contrast, 15.3% Black, 14.8% Chinese, 11.2% Latin American, and 10% Southeast Asian made up the total visible minority population in Waterloo Region. Other ethnic groups present within the WWLHIN included West Asian, Arab, Korean, and Japanese, among others (Ontario Trillium Foundation, 2008).

Figure 23 illustrates the proportion of the population who were a visible minority, as well as findings at the neighbourhood level.

Aboriginal Population

The number of people who self-identified as First Nations, Métis, or Inuit in Waterloo Region and Wellington County increased between 2001 and 2006 (Ontario Trillium Foundation, 2008). In 2006, Waterloo Region was home to 4,810 Aboriginal people (2,485 in Kitchener, 1,270 in Cambridge, and 1,055 in Waterloo) compared to 3,340 in 2001. In 2006, Wellington County had an Aboriginal population of 1,815 (1,290 in the City of Guelph), compared to 1,260 in 2001 (Region of Waterloo, n.d. c; Ontario Trillium Foundation, 2008). Of all the neighbourhoods in the WWLHIN, the Downtown Kitchener and Area neighbourhood had the highest percent of Aboriginal people (2.2%). Grey Bruce had an Aboriginal population of 3,655 with two First Nation reserves located in Bruce County (Glenda Clarke and Associates, 2010; Wonnacott & Ferguson, 2011). According to the 2006 Census, approximately 2% of the total Aboriginal population in the WWLHIN was in the Municipality of Southgate, while none were in the area of the Municipality of West Grey that is part of the WWLHIN.

It is important to note that Aboriginal population typically has a lower participation rate in the Canadian Census compared to the general population. Thus, numbers underestimate the size of this population (Ontario Ministry of Aboriginal Affairs, 2011). For example, members of the First Nations community in Waterloo Region estimated that the number of Aboriginal people living in Waterloo Region is closer to 10,000 (Region of Waterloo, 2006, as cited in Tardiff, 2009).
Findings of Figure 23
More than 25% of the population in the neighbourhoods of Highland West, West Waterloo, Columbia/Lakeshore, Parkwood Gardens, Victoria Hills/Cherry Hill/KW Hospital, Shades Mills, and West Willow Woods were visible minorities. The portion of the Municipality of West Grey that is part of the WWLHIN had no visible minority population.
Indicators of Health Outcomes

**KEY FINDINGS**

**Hospitalization Rates for Cardiovascular Disease**
- Five neighbourhoods in the WWLHIN had hospitalization rates for cardiovascular disease of more than 1,500 hospitalizations per 100,000 people on average over three fiscal years, which included St. Jacobs, North Cambridge, Township of North Wellington, Exhibition Park, and Blair.

**Hospitalization Rates for Injury**
- Seven neighbourhoods had hospitalization rates for injury between 800 and 1,255 hospitalizations per 100,000 people on average over three fiscal years. They included Township of North Wellington, Minto, Exhibition Park, Downtown Kitchener and Area, Blair, the Municipality of West Grey, and Brant Waverly.

**Hospitalization Rates for Diabetes***
- Three neighbourhoods had hospitalization rates for diabetes close to 200 hospitalizations per 100,000 people on average over three fiscal years, which included Minto, Municipality of West Grey, and Exhibition Park.

**Mortality Rates for Lung Cancer***
- Five neighbourhoods in the WWLHIN had between 75 and 116 deaths related to lung cancer per 100,000 people on average over three calendar years. They included Woolwich Rural East, Minto, Central Preston, Wellington North, and Municipality of West Grey.

*Three year aggregate counts of less than 5 were suppressed for confidentiality purposes; thus caution in interpretations and comparisons is needed. Refer to the Methodology and Limitations sections for further clarification.

**List of Exhibits**

Figure 24 – Three-year average cardiovascular-related hospitalization rate per 100,000 population, by neighbourhood, WWLHIN, 2007-2010

Figure 25 – Three-year average injury-related hospitalization rate per 100,000 population, by neighbourhood, WWLHIN, 2007-2010

Figure 26 – Three-year average diabetes-related hospitalization rate per 100,000 population, by neighbourhood, WWLHIN, 2007-2010

Figure 27 – Three-year average lung cancer-related mortality rate per 100,000 population, by neighbourhood, WWLHIN, 2007-2010
Health Outcomes

This section of the report provides maps of the neighbourhoods within the WWLHIN to illustrate areas with higher rates of four different health outcomes. The health outcome indicators include hospitalization rates for cardiovascular disease (Figure 24), hospitalization rates for injuries (Figure 25), hospitalization rates for diabetes (Figure 26), and mortality rates for lung cancer (Figure 27). These health outcome indicators, in combination with the previously described SDOH indicators, can assist in identifying priority neighbourhoods within the WWLHIN that would benefit from interventions to reduce health inequities.

It is important to note that rates for all health outcomes were reported at the neighbourhood level for the WWLHIN area, except for the Municipality of West Grey, where the rates were reported for the entire Municipality (i.e., rates for all of West Grey are being inferred for the small area that is within the WWLHIN). Also, the rates for some neighbourhoods for hospitalization rates for diabetes and mortality rates for lung cancer were suppressed due to low counts to maintain confidentiality. Caution is warranted when comparing rates between neighbourhoods. Please refer to the Limitations section for more information.
Findings of Figure 24
St. Jacobs had the highest rate of hospitalizations for cardiovascular disease at 1,866 hospitalizations per 100,000 people. Other parts of the WWLHIN had rates over 1500 hospitalizations per 100,000 people, which included North Cambridge (1,759), Township of North Wellington (1,753), Exhibition Park (1,628), and Blair (1,546). Woolwich Rural North, Eastbridge/Lexington, Southwest Kitchener, and Wellesley Rural North had rates of less than 300 hospitalizations per 100,000 people.
Findings of Figure 25
Township of North Wellington had the highest hospitalization rate for injuries at 1,255 hospitalizations per 100,000 people. Other areas with higher rates included Minto (1,121), Exhibition Park (1,035), Downtown Kitchener and Area (924), Blair (870), Municipality of West Grey (809), and Brant Waverly (800). All other neighbourhoods had a lower rate (less than 800 hospitalizations per 100,000 people) of hospitalization due to injuries.

*Note that the rate for the Municipality of West Grey is presented as a whole rather than the portion of the Municipality of West Grey that is part of the WWLHIN.

Source: 2006 Census, Statistics Canada; Inpatient Discharges main Table, Discharge Abstract Database (DAD), Ontario Ministry of Health and Long-Term Care, IntelliHealth Ontario.
Findings of Figure 26

Parts of the WWLHIN had average rates of diabetes-related hospitalizations close to 200 hospitalizations per 100,000 people, which included Minto, Municipality of West Grey, and Exhibition Park. Baden and West Waterloo had rates of less than 20 hospitalizations per 100,000 people. However, it is important to note that data for 11 neighbourhoods were censored due to low counts.
Figure 27 – Three-year average lung cancer-related mortality rate per 100,000 population, by neighbourhood, WWLHIN, 2007-2010

Findings of Figure 27
The portion of Woolwich Rural East had the highest rate of lung cancer mortality at 116 deaths per 100,000 people. Other parts of the WWLHIN had rates of over 75 deaths per 100,000 people, which included Minto, Central Preston, Wellington North, and Municipality of West Grey. Blair, Hidden Valley/Pioneer Tower and West Waterloo had no lung cancer-related death over the three calendar years. However, it is important to note that data for 14 neighbourhoods were censored due to low counts.
DISCUSSION: PRIORITY NEIGHBOURHOODS

Local Picture of the WWLHIN

Overall Ranking of Neighbourhoods

Priority neighbourhoods were identified through a system of ranking neighbourhoods according to eight social determinants of health (SDOH) indicators listed in Table 7 below. These SDOH indicators were chosen based on evidence from existing literature that shows these determinants have a direct impact on health. They were also chosen based on evidence from the SDOH data examined in this report, which indicated that these determinants were most likely to vary across neighbourhoods. All 65 neighbourhoods were ranked on each of the eight indicators (two neighbourhoods in the City of Guelph were excluded; please refer to the Methodology section for more details). The indicator ranks were then summed for every neighbourhood. Neighbourhoods appearing in the highest 20% of the overall rank were identified as priority neighbourhoods.

Table 7 – Indicators used in overall ranking of neighbourhoods

<table>
<thead>
<tr>
<th>SDOH Indicators</th>
<th>Impact</th>
</tr>
</thead>
</table>
| **Income**                    | • Low income status  
• Children living in low income households  
• Government transfer payments  
• Employment status  
   • People with lower socio-economic status use the health services more and are more often and more seriously sick or injured (Public Health Agency of Canada, 2004).  
• Children who live in low income households are more likely to have a range of health problems throughout their life, even if their socioeconomic status changes later in life (Ontario Physicians Poverty Work Group, 2008). |
| **Education level**           | • Without completed high school  
   • The higher and the more successful the education experience for children and adults is, the better their health will be (Public Health Agency of Canada, 2008).  
• The highest mortality rates in Canada are identified among people who do not have secondary school, those who are unemployed, or who are not seeking jobs, and those who have unskilled jobs and are consequently living on low incomes (Population Health Promotion Expert Group: Working Group on Population Health, 2009). |
| **Social and Community Support** | • Lone parent families  
   • People supported by their family, friends and communities experience better health (Public Health Agency of Canada, 2008). |
| **Housing**                   | • Housing affordability  
   • Affordability of suitable housing solutions is directly related to income and the consequences of inability to afford suitable housing situation lead to either food deprivation or substandard housing conditions, where either or both have direct negative health consequences (Public Health Agency of Canada, 2008). |
| **Immigration**               | • Immigrant population  
   • The poverty rate among new immigrants is second highest after the lone parent families (Butler-Jones, 2008). |
Table 8 lists the thirteen priority neighbourhoods in the WWLHIN. These areas showed higher rates of SDOH indicators associated with negative health outcomes relative to other neighbourhoods in the WWLHIN, such as low income and unemployment status, low education, and lack of social and community support (see Table 7 above). Figure 28 illustrates the thirteen priority neighbourhoods, which appeared in the highest 20% (i.e., highest quintile) of the overall rankings.

Table 8 – Thirteen priority neighbourhoods based on overall rankings using selected indicators*

<table>
<thead>
<tr>
<th>Priority Neighbourhoods</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kitchener</strong></td>
<td></td>
</tr>
<tr>
<td>• Vanier/Rockway</td>
<td></td>
</tr>
<tr>
<td>• Downtown Kitchener and Area</td>
<td></td>
</tr>
<tr>
<td>• Victoria Hills/Cherry Hill/ KW Hospital</td>
<td></td>
</tr>
<tr>
<td>• Alpine/Laurentian</td>
<td></td>
</tr>
<tr>
<td>• Bridgeport/Breithaupt/Mount Hope</td>
<td></td>
</tr>
<tr>
<td><strong>Waterloo</strong></td>
<td></td>
</tr>
<tr>
<td>• Columbia/Lakeshore</td>
<td></td>
</tr>
<tr>
<td><strong>Cambridge</strong></td>
<td></td>
</tr>
<tr>
<td>• Galt City Centre/South Galt</td>
<td></td>
</tr>
<tr>
<td>• North Galt/Elgin Park</td>
<td></td>
</tr>
<tr>
<td>• South East Galt</td>
<td></td>
</tr>
<tr>
<td>• Central Preston</td>
<td></td>
</tr>
<tr>
<td><strong>Guelph</strong></td>
<td></td>
</tr>
<tr>
<td>• Onward Willow</td>
<td></td>
</tr>
<tr>
<td>• West Willow Woods</td>
<td></td>
</tr>
<tr>
<td>• Two Rivers/St. George’s Park</td>
<td></td>
</tr>
</tbody>
</table>

*Priority neighbourhoods are listed in no particular order.
Figure 28 – Overall ranking of neighbourhoods in the WWLHIN using selected indicators†

†Indicators used in overall ranking of neighbourhoods

- Low income status
- Children living in low income households
- Government transfer payments
- Employment status
- Without completed high school
- Lone parent families
- Housing affordability
- Immigrant population

Source: 2006 Census, Statistics Canada; Death, Vital Statistics, Mortality, Inpatient Discharges Main Table, Discharge Abstract Database (DAD), Ambulatory Visits Main Table, National Ambulatory Care Reporting System (NACRS), Ontario Ministry of Health and Long-Term Care, Intellihealth Ontario.
Social Determinants of Health by Neighbourhood

This section will examine the data for each of the priority neighbourhoods (in bold) for the indicators of child poverty, developmental health, the immigrant population, and health care utilization.

Child Poverty and Priority Neighbourhoods

Because of the potentially significant impact of child poverty, as discussed in this report, neighbourhoods can be further prioritized by identifying areas in which children live in low income households. There were thirteen neighbourhoods in the WWLHIN area with more than 10% of children aged 6 years and under living in low income households. Ten of these neighbourhoods (in bold) were previously identified as priority neighbourhoods.

- Columbia/Lakeshore
- Downtown Kitchener and Area
- Vanier/Rockway
- Victoria Hills/Cherry Hill/KW Hospital
- Alpine/Laurentian
- North Galt/Elgin Park
- South East Galt
- Galt City Centre/South Galt
- Central Preston
- West Willow Woods
- Westmount
- Beechwood
- Lincoln/Dearborn

Developmental Health and Priority Neighbourhoods

The Early Development Instrument (EDI) measures the developmental health of young children. Developmental health includes the social, emotional, cognitive, language, and physical well-being of children. These five domains used in the EDI map directly onto the development of early childhood that have a life-long influence on health, well-being, behaviour, and learning skills.

Children scoring below the 10th percentile on two or more domains are considered vulnerable. Neighbourhoods in Wellington County and Waterloo Region were ranked separately due to variation in methodology. Wellington County (including the City of Guelph) did not include children with special needs.
needs when determining the proportion of children who were vulnerable at a neighbourhood level. In contrast, Waterloo Region included children with special needs.

Eleven of the thirteen previously identified priority neighbourhoods had the highest proportion of vulnerable children. These neighbourhoods are located in the urban centres.

In Wellington County, four neighbourhoods (the highest quintile) had the highest rates of vulnerable children (excluding children with special needs). Three of the previously identified priority neighbourhoods in the City of Guelph (in bold) and one rural area neighbourhood in Wellington County were included:

- Two Rivers/St. George’s Park
- Onward Willow
- Brant Waverly
- Minto

In Waterloo Region, nine neighbourhoods (the highest quintile) had the highest rates of vulnerable children (including children with special needs). Eight of the previously identified priority neighbourhoods in Waterloo Region (in bold) and one rural area neighbourhood were included:

- Victoria Hills/Cherry Hill/KW Hospital
- North Galt/Elgin Park
- Vanier/Rockway
- Bridgeport/Breithaupt/Mount Hope
- Downtown Kitchener and Area
- Columbia/Lakeshore
- Alpine Laurentian
- South East Galt
- Elmira

**Immigrant Population and Priority Neighbourhoods**

Six of the thirteen priority neighbourhoods had comparatively high rates of immigrants, recent immigrants, and visible minorities:

- Columbia/Lakeshore
- Vanier/Rockway
- Victoria Hills/Cherry Hill/ KW Hospital
- Alpine/Laurentian
- Onward Willow
- West Willow Woods
These neighbourhoods were also at higher risk for experiencing disadvantages in other social determinants of health. As discussed earlier, immigrants often have a harder time finding employment, affordable housing, and child care (Guelph Inclusiveness Alliance, 2008, as cited in Wellington-Dufferin-Guelph Coalition for a Report Card on the Well-Being of Children, 2009). Findings from this report suggest that neighbourhoods in the WWLHIN area with many recent immigrants and visible minorities also had the highest rates of unemployment. Additionally, cultural differences and language barriers can lead to isolation and difficulties accessing health and social services.

**Health Care Utilization and Priority Neighbourhoods**

Rates for selected negative health outcomes were calculated. Table 6 shows neighbourhoods with two or more negative health outcomes in the highest quintile for lung cancer mortality rates, and for hospitalizations due to cardiovascular disease, injury, and diabetes. Five of the thirteen priority neighbourhoods had high rates of hospitalizations and/or mortality (in bold).

**Table 6 – Neighbourhoods with two or more negative health outcomes in the highest quintile based on mortality rates due to lung cancer and hospitalization rates due to cardiovascular disease, injury, and diabetes†**

<table>
<thead>
<tr>
<th>Neighbourhood</th>
<th>Cardiovascular-related hospitalizations</th>
<th>Injury-related hospitalizations</th>
<th>Diabetes-related hospitalizations</th>
<th>Lung cancer-related mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown Kitchener and Area</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Galt City Centre/South Galt</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Two Rivers/St. George’s Park</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Central Preston</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Bridgeport/Breithaupt/Mt. Hope</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Brant Waverley</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Exhibition Park</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Township of North Wellington</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Minto</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Township of Centre Wellington</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Municipality of West Grey*</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>North Cambridge</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Blair</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Township of Puslinch</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>St. Jacobs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

†Unsuppressed data were used to determine the neighbourhoods in the top quintile for each health outcome.

*The entire Municipality of West Grey was included in the analysis.*
Of the priority neighbourhoods, two areas in the City of Cambridge had high rates for all four of the negative health outcomes:

- Central Preston
- Galt City Centre/ South Galt

Other priority neighbourhoods that had high rates for two or three of the health outcomes were:

- Downtown Kitchener and Area
- Two Rivers/St George’s Park
- Bridgeport/Breithaupt/Mount Hope

Of the non-priority neighbourhoods with high rates of negative health outcomes, four were urban neighbourhoods and four were rural areas. Two urban neighbourhoods in the City of Guelph had high rates for all four of the health outcomes:

- Brant Waverley
- Exhibition Park

Three rural areas in Wellington County also had high rates for all four of the health outcomes:

- Minto
- Township of North Wellington
- Municipality of West Grey

Other neighbourhoods in the top quintile with high rates of negative health outcomes were:

- North Cambridge
- Blair

Rural

- Township of Centre Wellington
- Township of Puslinch
- St. Jacobs

Summary

The priority neighbourhoods that were identified in this section reflect the health and social inequities within the WWLHIN area. Further investigation is warranted to examine the SDOH and health outcomes for these identified areas, in order to implement appropriate interventions to reduce the disparities between neighbourhoods within the WWLHIN.
REFERENCES


GLOSSARY

**Canadian Community Health Survey (CCHS):** CCHS is a cross-sectional survey that gathers data on the health status of Canadians, such as information about physical activity levels and smoking.

**Census Metropolitan Area:** A Census Metropolitan Area is a Census geographic area has a minimum total population of 100,000, where 50,000 or more of the population resides in the urban core that consists of one or more adjacent municipalities.

**Census Subdivision (CSD):** A CSD is a Census geographic area equivalent to a municipality.

**Dissemination Area:** A Dissemination Area is the smallest defined Census geographic area, and has a population of 400 to 700.

**Dwelling:** A dwelling is a set of living quarters, such as a house or an apartment building.

**Early Development Instrument (EDI):** The EDI is a tool used to measure a child’s readiness to learn at school. It measures five domains, including physical health and well-being, social competence, emotional maturity, language and cognitive skills and communication and general knowledge.

**Government Transfer Payments:** Government transfer payments are sources of income from the government, including unemployment insurance, social assistance, child tax credits, goods and services tax credits, old age security pensions, refundable tax credits, and war veterans’ allowances.

**Health Unit Area (or Public Health Unit Area):** The WWLHIN is made up of three health unit areas, including Region of Waterloo Public Health, Wellington-Dufferin-Guelph Public Health, and Grey Bruce Health Unit. However, only the southern tip (i.e., the Municipality of Southgate and a small part of the Municipality of West Grey) of Grey Bruce is part of the WWLHIN.

**Households:** A household is generally composed of a person or group of persons residing in a dwelling.

**Indicator:** An indicator (for this report) refers to a single measure reflecting a dimension of the social determinants of health or health outcomes.

**Kindergarten Parent Survey (KPS):** The KPS is a survey that gathers information on the health, utilization of child care, and social support networks (e.g., families) of senior kindergarten students. It is used in conjunction with the Early Development Instrument, but unlike the EDI, the KPS information is collected from parents and caregivers.

**Municipality:** A municipality is an area that is determined by provincial/territorial legislation for administrative and governing purposes.
CALCULATION OF INDICATORS FOR MAPS AND TABLES

Calculations are shown in the order that maps and tables are presented in this technical report.

We would like to acknowledge the Association of Public Health Epidemiologists in Ontario (APHEO) Core Indicators website which was referenced during the development of these indicator calculations (APHEO, 2011).

Population distribution by age and sex
Population for each age-sex-specific group divided by the total population of the WWLHIN, multiplied by 100.

Proportion of total population of the WWLHIN by neighbourhood
Total population of each neighbourhood divided by the total population of the WWLHIN, multiplied by 100.

Proportion of the population aged 14 years and under by neighbourhood
Population aged 14 years and under of each neighbourhood divided by the total population of that neighbourhood, multiplied by 100.

Proportion of the population aged 65 years and over by neighbourhood
Population aged 65 years and over of each neighbourhood divided by the total population of that neighbourhood, multiplied by 100.

Average after-tax income of private households by public health unit area
Number of private households of each PHU area for each average after-tax income level divided by the total number of private households in that PHU area, multiplied by 100.

Proportion of private households with low income after tax by neighbourhood*
Number of people in low income private households in each neighbourhood divided by the total population in private households of that neighbourhood, multiplied by 100.

Proportion of children aged 6 years and under in private households with low income after tax by neighbourhood*
Number of children aged 6 years and under in low income households in each neighbourhood divided by the total number of children aged 6 years and under in private households in that neighbourhood, multiplied by 100.

Proportion of average family income from government transfer payments by neighbourhood*
Income from government transfer payments for economic families in each neighbourhood divided by total income for economic families in that neighbourhood, multiplied by 100.

*Prevalence rate was provided in the Census data by Statistics Canada
Proportion of the population aged 25 to 64 years without completed high school education by neighbourhood

Number of people aged 25 to 64 years with no certificate (including high school certificate), diploma or degree in each neighbourhood divided by the number of people aged 25 to 64 years in that neighbourhood.

Proportion of total population by marital status and public health unit area

Population for each marital status group of each PHU area divided by the total population of that PHU area, multiplied by 100.

Proportion of families that were lone parent families, by sex of parent and number of children, and by public health unit area

Number of lone parent families with children for each sex and number of children group in each PHU area divided by the total number of census families with children in private households in that PHU area, multiplied by 100.

Proportion of families that were lone parent families by neighbourhood

Number of lone parent families with children in each neighbourhood divided by the total number of census families with children in private households in that neighbourhood, multiplied by 100.

Three-year average ED visit rate (all cause) per 100,000 population by neighbourhood

Total number of ED visits (all cause) in each neighbourhood averaged over three fiscal years divided by the total population of that neighbourhood (Census population data), multiplied by 100,000.

Proportion of households that spent 30% or more of their income on housing costs by neighbourhood

Number of rental and owned households that spent 30% or more of income on housing costs in each neighbourhood divided by total number of rental units and owned households in that neighbourhood, multiplied by 100.

Proportion of non-owned private dwellings by neighbourhood

Number of private rental dwellings in each neighbourhood divided by total number of private dwellings in that neighbourhood, multiplied by 100.

Proportion of the population who were immigrants by neighbourhood

Landed immigrant population within each neighbourhood divided by total population of that neighbourhood, multiplied by 100.
Proportion of the immigrant population who immigrated to Canada within the past five years by neighbourhood

Landed immigrant population within the past 5 years (2001 to 2006) of each neighbourhood divided by the total immigrant population of that neighbourhood, multiplied by 100.

Proportion of the population who were a visible minority by neighbourhood

Number of people reported as belonging to a visible minority group (or multiple visible minority groups) in each neighbourhood divided by the total population of that neighbourhood, multiplied by 100.

Three-year average cardiovascular-related hospitalization rate per 100,000 population by neighbourhood

Total number of cardiovascular-related hospitalizations in each neighbourhood averaged over three fiscal years divided by the total population of that neighbourhood (Census population data), multiplied by 100,000.

Three-year average injury-related hospitalization rate per 100,000 population by neighbourhood

Total number of injury-related hospitalizations in each neighbourhood averaged over three fiscal years divided by the total population of that neighbourhood (Census population data), multiplied by 100,000.

Three-year average diabetes-related hospitalization rate per 100,000 population by neighbourhood

Total number of diabetes-related hospitalizations in each neighbourhood averaged over three fiscal years divided by the total population of that neighbourhood (Census population data), multiplied by 100,000.

Three-year average lung cancer-related mortality rate per 100,000 population by neighbourhood

Total number of lung cancer-related mortality in each neighbourhood averaged over three fiscal years divided by the total population of that neighbourhood (Census population data), multiplied by 100,000.

Overall rankings of neighbourhoods

Please refer to the Methodology section for the calculation of overall rankings of neighbourhoods.
LIMITATIONS

Certain data limitations exist that must be considered when interpreting the findings presented in the main document and technical report. Some limitations may inform future recommendations.

Time Constraints

A tight timeline placed severe restrictions on the scope and breadth of this project. Within the available timeline:

- Only data from the 2006 Canadian Census were obtained and analyzed; this limited the choice of SDOH indicators presented in this report.
- Only certain health outcomes data were requested and only four health outcomes were available; this limited the choice of health outcome indicators presented in this report.
- Testing of correlation or inference was not feasible; hence, only patterns between maps and information from existing literature were studied.
- Overlaying of maps showing different SDOH and health outcome indicators could not be completed.
- Not all information about neighbourhood priorities and programs in each PHU area was available.

Selection of Indicators

Selection of indicators was based on available data; the list of SDOH and health outcome indicators does not reflect an exhaustive list. Further investigation on the use of SDOH and health outcome indicators in the analysis and overall ranking of neighbourhoods is warranted, especially in identifying priority neighbourhoods.

Pre-existing Reports

- Comparisons of findings from pre-existing reports must be done with caution, as data may not have been analyzed using the same methodologies or using the same population definitions.
- With respect to pre-existing reports received from the three PHUs and two CHCs, the reports did not have the same level of detail or same amount of reporting. Thus, the PHUs may not be equally represented in general findings.
- Reports received from Grey Bruce Health Unit presented SDOH indicators at a PHU level. Unless otherwise stated, data from pre-existing reports from Grey Bruce Health Unit represented the entire Grey Bruce population and may not be representative of the Municipality of Southgate and the small area of the Municipality of West Grey that is part of the WWLHIN.
Some findings from pre-existing reports for Wellington County and the City of Guelph include data from Dufferin County, which falls within the catchment area for Wellington-Dufferin-Guelph. Where this occurred, it is stated in the main document and technical report.

Comparisons of EDI results across neighbourhoods and between the three PHU areas must be interpreted with caution. EDI results for Waterloo Region include children with special needs, while Wellington County and the City of Guelph do not (except where otherwise stated). Also, the EDI was implemented in each area at different times, which could affect interpretations.

Geocoding Method

Different geocoding methods were used to assign counts of health outcomes data to the appropriate neighbourhoods within the WWLHIN (please refer to the Methodology section). During the geocoding process, some data were not able to be assigned to neighbourhoods due to issues such as missing postal codes. These cases were excluded in the analysis:

- 1.89% of data for total emergency department (ED) visits (all cause) (n=759,435).
- 1.95% of data for cardiovascular-related hospitalizations (n=17,524).
- 2.75% of data for injury-related hospitalizations (n=11,531).
- 1.86% of data for diabetes-related hospitalizations (n=1,937).
- 4.98% of data for lung cancer-related mortality (n=924).

Two neighbourhoods in the City of Guelph (Commercial Area and University) were excluded from the analysis, and the actual rates for these two neighbourhoods are unknown.

Geography of the Municipality of West Grey

The Municipality of West Grey is a municipality that is shared between the WWLHIN and South West LHIN. The area of the Municipality of West Grey that is within the WWLHIN is a DA based on the 2001 Census boundaries. However, the Census boundaries in the Municipality of West Grey were redefined by Statistics Canada at the DA level in 2006. For this report, 2006 Census data based on the 2001 Census boundaries were not available.

Currently, there are three DAs (i.e., DAs 35420282, 35420285, 35420315) based on the 2006 Census boundaries that fall partly within the 2001 boundary. The MOHLTC and the WWLHIN decided that only DA 35420282 (based on the 2006 Census boundaries) would be allocated to the WWLHIN, based on the proportion of the population in each DA that falls within either LHIN area, while the other two DAs are allocated to the South West LHIN.
Rates for Social Determinants of Health Indicators

The 2006 Census data were available at the DA level. According to the MOHLTC and WWLHIN’s method, 2006 Census data from the DA 35420282 are used to represent the area of the Municipality of West Grey that is within the WWLHIN. Thus, the true rates for the SDOH indicators in this area are unknown.

Rates for Health Outcome Indicators

As discussed above, the DA 35420282 is used to represent the area of the Municipality of West Grey that is within the WWLHIN. Using the single link indicator in Postal Code Conversion File (PCCF), only one postal code (N0G1C0) corresponds to this DA. However, while all of the records for the postal code N0G1C0 are assigned to the DA 35420282 using the single link indicator, the area the postal code N0G1C0 covers is a broader area than the DA itself. Therefore, a larger population corresponds to postal code N0G1C0 than to the DA 35420282. Moreover, the population data from the 2006 Census (denominator) were extracted at the DA level, and not by postal code. This lack of congruency between the DA and postal code areas affected the health outcome data analysis, as health events for a larger population (postal code area) were being attributed to a smaller population (DA area), resulting in an over-inflated rate for each health outcome indicator for this area of the Municipality of West Grey. Thus, the rates for the entire Municipality of West Grey for all four health outcome indicators were presented, and were inferred to the small area of the Municipality of West Grey that is part of the WWLHIN. However, the true rates for the health outcome indicators in this area are unknown.

Year of Data Collection

• Population data used as denominators for calculating health outcome rates were extracted from the 2006 Census, but data for ED visits and hospitalizations are from fiscal years 2007 to 2010, and data for mortality are from calendar years 2005 to 2007. The differences in timeframe of the numerators and denominators may result in over- or under-estimation of rates.

• 2006 data from the Canadian Census may not be representative of the 2011 WWLHIN population due to changes in the characteristics of the population over time, including but not limited to changes as a result of historical events (e.g., the recent world-wide economic recession) or due to population migration patterns.
**Data Suppression**

- Census data counts are rounded by Statistics Canada to either the nearest zero or five using a probability-based algorithm, for confidentiality purposes, which results in a small margin of inaccuracy.
- Some health outcome rates were not shown on the maps due to low counts; three-year aggregate counts lower than 5 were suppressed. This may affect the comparison and interpretation of health outcome rates between neighbourhoods.

**Calculation of Rates**

- Originally, it was intended that age- and sex-standardized ratios would be calculated for health outcome indicators. However, it was decided that crude rates would be more appropriate for the intended audience. Readers are advised to be cautious when comparing rates between neighbourhoods, since the age and sex distributions can be very different from one neighbourhood to another.
- There were a few cases of health outcome data where the sex was indicated as “other,” and these were excluded from the analysis to be consistent with the Census data, where male and female are the only categories for sex. This may have slightly affected the rates of health outcome indicators presented in the main document and technical report.

**Variability of Rates**

Case counts of certain health outcomes can be small for each neighbourhood and vary from one year to the next. Readers are advised to be cautious when comparing rates between neighbourhoods, especially for diabetes-related hospitalization rate and lung cancer-related mortality rate, due to low counts and high variability of rates in some neighbourhoods.

**Consultation of Stakeholders**

Due to the tight timeline of this project, only internal stakeholders (i.e., public health professionals from the three PHUs) were consulted to discuss the recommendations using the findings from the technical report for the WWLHIN area. Further consultation with stakeholders from the community is warranted; this report is one of many initiatives within the WWLHIN area to address SDOH inequities and health disparities.