

Injury Surveillance and Prevention Report

To: Chair and Members of the Board of Health

Meeting Date: April 3, 2024

Report No. **BH.01.APR0324.R11**, Pages: 14

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Recommendations

It is recommended that the Board of Health receive this report for information.

Key Points

- This report provides an overview of injury-related emergency department (ED) visits, hospitalizations, and mortality information for Wellington-Dufferin-Guelph by geography, age group and sex.
- Rates of injury-related ED visits, hospitalization and mortality have been increasing in the region.
- Fall injuries account for more than 60% of injury-related ED visits and hospitalizations, and more than 40% of injury-related mortality.
- The overwhelming majority of fall-related injuries happen at home.
- The 20-44-year age group is most vulnerable to premature deaths.
- For children and youth, ages 1-5 and 13-19 are at the highest risk of injury.
- Wellington-Dufferin-Guelph (WDG) Public Health works closely with community partners to reduce the burden of preventable injuries.

Background

Injuries have a significant impact in WDG, both in terms of the toll they take on individuals and their families, as well as broader social and economic costs they impose.¹ Unintentional injuries were the leading cause of death among Canadians aged 1 to 34 years, and the 6th leading cause of death among all ages combined.^{2,3} They also result in a significant burden of disability, with many people experiencing long-term physical, emotional and psychological effects that can impact their quality of life. Many injuries are preventable and there are evidence-based strategies that can help reduce the incidence and impact of injuries. For instance, the Canadian Institute for Health Information (CIHI) has estimated that up to 80% of fall-related injuries among older adults could be prevented through the implementation of fall-prevention programs.⁴

Although most injuries are minor and unreported, the more severe injuries are captured through ED visits, which may be followed by hospitalizations, and, in the most serious cases, mortality. To gain insight into injuries, this report examines injury ED visits, hospitalizations, and mortality information for Wellington-Dufferin-Guelph health region by geography, age group and sex.^{5, 6, 7} The injury categories used in this report align with priorities identified by local community partners:

- Pedestrian and cyclist injuries
- On/Off road motor vehicle injuries
- Agricultural machinery and tool injuries
- Sports and recreation injuries
- Falls injuries
- Accidental poisonings
- Intentional self-harm

Discussion

Overall Injury Rates and Trends

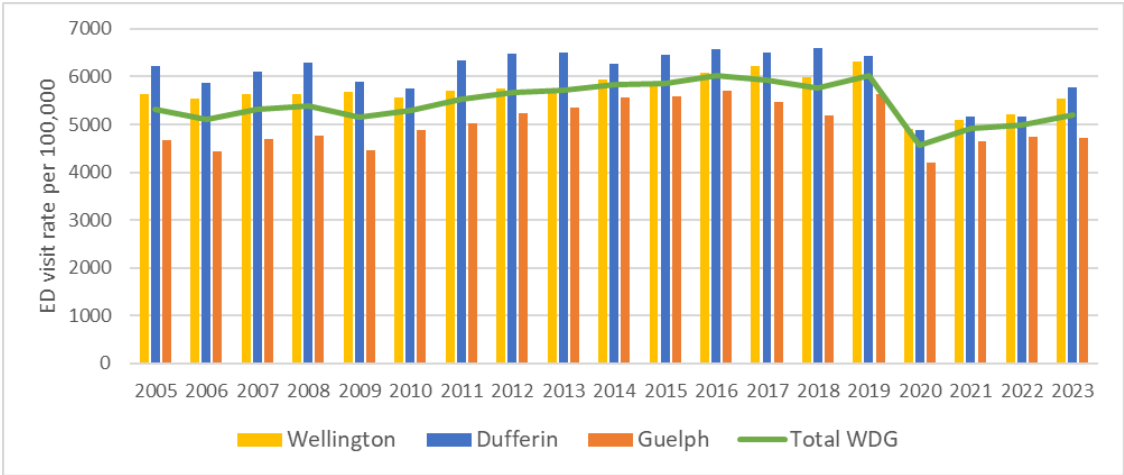
Wellington-Dufferin-Guelph's rate of injury-related ED visits is higher than the overall rate in Ontario, as shown in Table 1. It should be noted that WDG's ED visit rate ranks tenth amongst the 34 Public Health Units, where first place has the lowest rate. The age-standardized rate comparison between Ontario and all public health units eliminates population age distribution differences between the populations being compared.

Table 1. Injury rates in WDG and Ontario (2021)

Age-standardized rate per 100,000	WDG	ON	Significant difference	Rank of 34 health units (lowest to highest)
ED visits ⁸	10,113.5	8,527.4	Higher	10
Hospitalizations ⁹	546.8	553.3	No	8
Mortality ¹⁰	57.8	55.8	No	13

Injury rates steadily increased between 2005 and 2019, as shown in chart 1 below. This trend is most evident in the 40-64 and 75+ age groups which appears to drive the overall injury rate. An increasing trend is also seen for WDG’s sub-regions, with Dufferin generally having higher rates compared to the rest of WDG.

Chart 1. WDG injury ED visit rates by geography and year



It is worth noting that, since 2005, the WDG population has gotten older, is living longer (especially women) and is more active than before.

Injury Types and Geography

Falls account for more than 60% of injury ED visits and hospitalizations, and more than 40% of injury-related mortality in WDG. When comparing regions within WDG, Guelph has a higher proportion of falls resulting in hospitalization at 75%, as shown in Table 2.

Table 2: Proportion of falls injury of total injuries in ED visits, hospitalizations, mortality by geography

Falls injury proportion	Wellington	Dufferin	Guelph	WDG
ED visits	64%	63%	64%	64%
Hospitalization	72%	66%;	75%	72%
Mortality	44%	44%	45%	45%

The majority of fall-related injuries requiring hospitalization occur in the home. This includes private homes, residential institutions or other institutions and accounts for more than 80% of the total.

Sports recreational injuries and motor vehicle accidents represent the next highest proportion of injury-related ED visits and hospitalizations, accounting for about 10% each. However, injuries like accidental poisonings and intentional self-harm represent a small proportion of ED visits and hospitalizations but make up a sizable proportion of deaths, as seen in Table 3 below. This contrast underscores a critical public health concern: while some causes of injury might lead to more frequent hospital visits, others, though less common in this context, result in a higher likelihood of death. This discrepancy points to the need for targeted preventive measures and interventions that address not only the most common causes of hospital visits but also the less frequent but more fatal injury causes. The data presented in Table 3 emphasizes the complex nature of injury-related health outcomes and the importance of a multifaceted approach to prevention, treatment, and education to mitigate these risks.

Table 3: Proportion of injury mortality by geography, 2005-2021

Injury mortality type	Wellington	Dufferin	Guelph	WDG
1. Pedestrian and Cyclist injuries	3%	2%	3%	3%
2. On/Off Road Motor Vehicle	17%	19%	9%	14%
3. Agricultural Machinery and Tools	1%	1%	0%	1%
4. Sports and Recreation injuries	2%	2%	0%	1%
5. Falls injuries	44%	44%	45%	45%
6. Accidental Poisonings	9%	13%	19%	14%
7. Intentional Self-harm	24%	19%	24%	23%

While 9% of injury-related ED visits are hospitalized in WDG, there is variability by injury type and geography. Falls, accident poisonings and intentional self-harm injuries are hospitalized at a higher rate due to the serious nature of the injuries.

The underlying risk factors and consequently the most effective preventive measures for injuries vary widely based on the type of injury in question. For instance, the strategies to mitigate the risks associated with motor vehicle collisions encompass a diverse array of approaches. These range from individual actions such as consistent seatbelt usage and adhering to speed limits, to broader systemic interventions including the improvement of road design and the incorporation of advanced safety features in vehicles. This multifaceted approach highlights the importance of both personal responsibility and structural changes in preventing road-related injuries.

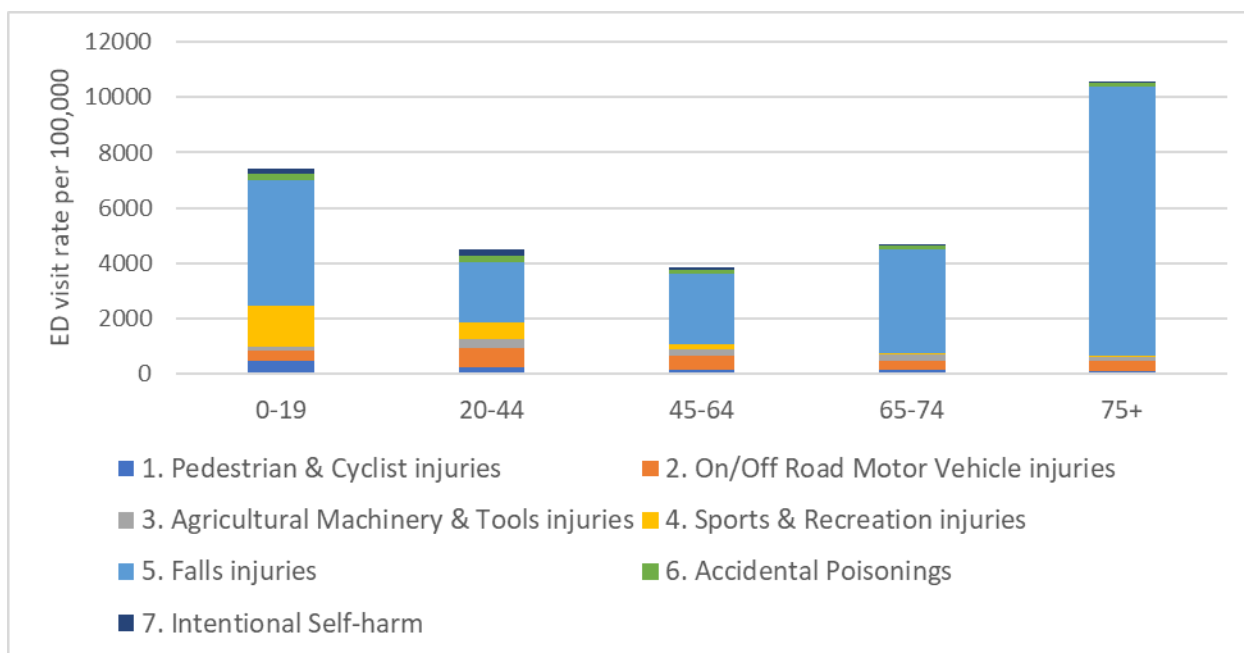
Similarly, when considering the prevention of falls, especially given that the majority occur within the home, the focus shifts to ensuring that living environments are equipped with necessary safety measures. This can include the installation of grab bars in critical areas, ensuring proper lighting, and the removal of trip hazards, reflecting the need for tailored strategies that address the specific contexts in which falls are likely to occur.

Moreover, the challenge of addressing injuries is further compounded when considering health equity implications. Injuries do not affect all population groups equally; social, economic, and environmental determinants play a crucial role in influencing not only the risk of injury but also the accessibility and quality of care following an injury, and the long-term outcomes for those affected. For example, lower-income communities might experience higher rates of certain injuries due to inadequate living conditions or limited access to preventive healthcare services. Therefore, a comprehensive injury prevention strategy must encompass a broad understanding of these underlying factors, aiming to not only reduce the incidence of injuries across the board but also to ensure that interventions are equitable and accessible to all segments of the population, regardless of their socioeconomic status.

Injuries by Age and Sex

Age is a significant risk factor for injuries. Of the five age groups shown in Chart 2, the youngest and oldest groups have the highest injury ED visit rates.

Chart 2. WDG ED visit rate by injury type and age group, 2005-2023



Falls still represent the largest proportion of ED visits within each age group, ranging from 48% (20-44-years) to 92% (75+ years). As expected, the youngest group has the highest rates of sports and recreational injuries, since that age group is more likely to participate in those activities.

As with ED visits, fall-related hospitalizations account for the largest proportion among all age groups. While falls account for the highest proportion in the 75+ years group (95%), intentional self-harm and motor vehicle collisions account for the largest proportion in the 20-44-years of age group (28% and 17% respectively). This finding underlines the significance of age-specific risk factors for injury, demonstrating that the primary causes of hospitalizations change significantly with age. For younger adults, this suggests the need for targeted interventions that address mental health support, suicide prevention and road safety measures.

The WDG injury mortality rate is 40 per 100,000 and is highest for the 75+years age group (254 per 100,000). With the addition of 2019-2021 mortality data, rates have increased for accidental poisonings for the 20-44-year and 45-64-year age groups. The rise in accidental poisoning deaths among the 20-44 and 45-64 age groups signals emerging public health threats that could be linked to the opioid crisis or increased access to harmful substances. Accidental poisonings due to narcotics and other drugs have increased since 2015 in the region and this reflects a broader worldwide trend related to substance use. This trend also highlights the importance of robust public

health strategies that include education on the dangers of substance misuse, improved regulation of prescription medications, and accessible treatment options for substance use disorders.

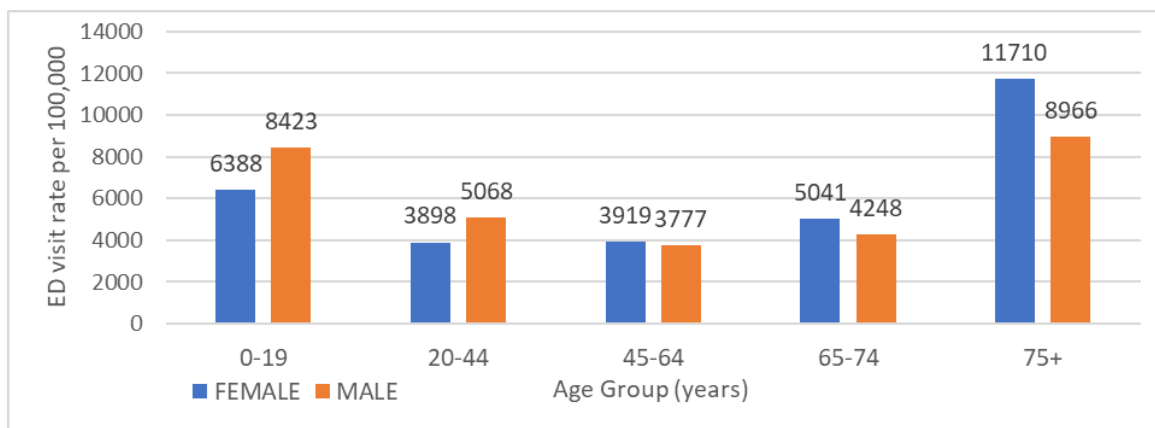
Table 4 Proportion of injury mortality by age group, 2005-2021

Injury mortality type	Age group (years)				
	0-19	20-44	45-64	65-74	75+
1. Pedestrian and Cyclist injuries	12%	3%	3%	2%	1%
2. On/Off Road Motor Vehicle	47%	23%	14%	13%	4%
3. Agricultural Machinery and Tools	2%	1%	1%	0%	0%
4. Sports and Recreation injuries	7%	1%	2%	1%	0%
5. Falls injuries	1%	3%	11%	58%	90%
6. Accidental Poisonings	4%	33%	24%	5%	1%
7. Intentional Self-harm	27%	36%	45%	21%	3%

Behavioural differences due to sex play a role in injury risk. Males tend to take more risks, have higher participation rates in sports and recreational activities and are more likely to work with agricultural machinery or tools. Females have longer life expectancy, meaning more females are included in the 75+ years age group. These factors put each group at risk for different types of injuries.

When comparing sex by age groups, males in youngest age group (0-19 years), have highest higher rates of ED visits. In the 45–64-year age group, the rates are comparable. In the two older age groups, females have the higher ED visit rate, as shown in Chart 3.

Chart 3. WDG injury ED visit rate by se and age group, 2005-2023



Injuries in Youth

The proportion of injury types varies for each individual age. Although falls are common for all ages, they make up a substantial proportion in the younger ages. By age 12 and older, falls make up less than half of ED visits. Sports and recreational injuries increase with age, peaking around 15-years of age, making up about 30% of injury ED visits for that age.

For toddlers (ages 1 and 2), the high incidence of falls underscores the exploratory phase of this age group, where their newfound mobility leads to increased risks of falls as they learn to walk and climb. This suggests a critical need for parental supervision and childproofing efforts during these years to mitigate the risks of falls. Educational campaigns targeting parents and caregivers about the importance of securing potentially hazardous areas can play a significant role in preventing these types of injuries.

Emergency Department (ED) visits for pedestrian and cyclist injuries begin to rise at approximately 2 years of age, stabilize from ages 5 to 9, and reach a maximum at 13 years of age. This pattern aligns with key stages of physical growth and increased mobility among children and early adolescents. On the other hand, motor vehicle-related injuries are observed across the 0 to 19-year age spectrum but escalate notably during adolescence, culminating in a peak at 18 years of age, which likely correlates with the onset of driving among teenagers. Furthermore, the highest frequency of ED visits for accidental poisonings is seen in children aged 5 and younger, reflecting the exploratory nature of this age group, with teenagers forming the second-largest affected demographic. Additionally, the incidence of ED visits for intentional self-harm is most pronounced at 17 years of age, indicating a critical period for mental health vulnerabilities among older teenagers.

These trends highlight critical periods in youth development that are associated with an increased risk of injury from different causes. The early childhood years are particularly risky for pedestrian, cyclist, and accidental poisoning incidents, emphasizing the need for vigilant supervision and preventive measures tailored to this age group's curiosity and mobility. The teenage years, marked by a significant rise in motor vehicle injuries and intentional self-harm visits to the ED, underscore the importance of targeted interventions such as safe driving education, mental health support, and substance misuse prevention. Recognizing these patterns is crucial for developing age-specific safety and prevention strategies to reduce the incidence and impact of these injuries.

WDG Public Health Partnerships and Community Response

WDG Public Health continues to engage with community partners in a collaborative effort to support the evidence-informed planning and implementation of local initiatives aimed at reducing the burden of preventable injuries. The following is a summary of community collaboratives WDG Public Health is actively involved in across the Wellington-Dufferin-Guelph region.

Safe Communities Wellington County

Safe Communities Wellington County (SCWC) is a multi-sector table with the overarching vision to make Wellington County the safest and healthiest place in which to live, learn, work, and thrive in Canada.¹¹ It consists of partners from municipal councils, emergency services, school boards and other organizations that share an interest in making Wellington County a safe place to live. Since 2012, WDG Public Health has supported this group by providing research evidence, local data and evaluation support.

In June of 2023, WDG Public Health participated in SCWC's priority setting meeting by presenting an analysis of relevant local data to support decision making and contributed to intervention planning and ranking discussions. In January of 2024, SCWC Action Groups presented their 2024 Action Plans which were informed by the priority setting exercise. Current key priority action areas of this group include:

1. Reducing motor vehicle collisions throughout Wellington County
2. Reducing instances of falls in the older population
3. Providing easier access to mental health supports
4. Decreasing the number of accidental poisonings throughout Wellington County¹²

City of Guelph Vision Zero Steering Committee

As an outcome of the City of Guelph's Transportation Master Plan, the City is applying a Vision Zero strategy to design roads and related infrastructure (e.g. traffic calming, reduced speed limits, automated speed enforcement cameras, pedestrian crossovers) to reduce the risk of fatalities and serious injury from collisions to zero.¹³ WDG Public Health has been a member of the Vision Zero Steering Committee since its formation in early 2023 and has co-chaired the committee alongside the City of Guelph since last fall. As co-chair, WDG Public Health recently conducted a committee process

evaluation and guided the committee in a priority-setting exercise to support its vision where all road users (people on bikes, in vehicles and on foot) safely use roadways without conflict, severe injury or fatality.¹⁴ WDG Public Health also continues to provide evidence on road safety and built environment measures, and guidance on road safety interventions and communications. Current key priorities of this group include:

1. Promoting the City of Guelph's Vision Zero Storymap and Dashboard, which was launched in February 2024¹³
2. Consult on and support the City of Guelph's Vision Zero Action Plan
3. Collaborate on education and awareness campaign(s)¹⁵

Dufferin Community and Safety Well-Being Plan Integration Table

The Dufferin Community and Safety Well-Being Plan Integration Table is a multi-sector advisory committee comprised of representation from municipal councils, police service board and other local service providers from health, mental health, education, social services and children/youth services. The Integration Table is charged with developing and maintaining its Community Safety and Well-Being (CSWB) Plan, which was developed using an evidence-informed community engagement process. The 2021-2024 Plan aims to improve the quality of life in Dufferin County by addressing these five priority areas:

1. Mental Health and Well-Being
2. Housing and Homelessness
3. Substance Use and Addiction
4. Discrimination, Marginalization and Racism
5. Community Safety and Violence Prevention¹⁶

WDG Public Health joined the Integration Table in 2023 and has since supported the promotion of their General Public Survey this past winter. As a next step, WDG Public Health will contribute to the interpretation and prioritization of the survey results to inform updating the CSWB Plan.

Conclusion

Rates of injury ED visits, hospitalization and mortality have been increasing in the Wellington-Dufferin-Guelph health region. Falls account for more than 60% of injury ED visits and hospitalizations, and more than 40% of injury mortality. The 75+ age group has the highest rate of injury ED visits, hospitalization and mortality.

Although injuries can have a significant impact on WDG residents, research has shown that many injuries are preventable through the implementation of evidence-based prevention strategies, such as safety regulations, education and environmental modifications.

WDG Public Health collaborates with several local community partners to reduce the impact of injuries through data analysis, research evidence and evaluation support.

Ontario Public Health Standards

Foundational Standards

- Population Health Assessment
- Health Equity
- Effective Public Health Practice
- Emergency Management

Program Standards

- Chronic Disease Prevention and Well-Being
- Food Safety
- Healthy Environments
- Healthy Growth and Development
- Immunization
- Infectious and Communicable Diseases Prevention and Control
- Safe Water
- School Health
- Substance Use and Injury Prevention

2024-2028 WDGPH Strategic Directions

More details about these strategic goals can be found in [WDGPH's 2024-2028 Strategic Plan](#).

- Improve health outcomes
- Focus on children's health
- Build strong partnerships
- Innovate our programs and services
- Lead the way toward a sustainable Public Health system

Health Equity

Priority populations are particularly vulnerable to injuries as they have been shown through data-driven analyses to have higher risks of injury due to socioeconomic, demographic, or structural factors. Understanding the unique challenges and barriers these populations encounter is essential for developing targeted interventions and policies aimed at promoting injury prevention. Health equity principles are being applied across all WDGPH injury-related products, projects, and collaborations with the goal of reducing differences in injury-related harms between population groups.

One example is WDG Public Health's involvement in the Walkshop road safety event in the Onward Willow neighbourhood in the City of Guelph in the fall of 2023. A Walkshop is a mobile workshop on a pre-determined route that allows participants to visit, learn about and reflect on local vision zero and transportation challenges and projects. This event, led by the City of Guelph, took place in an equity-deserving neighbourhood experiencing transportation and road safety barriers for vulnerable road users. The aim was to engage local residents and community agencies to increase awareness of safe mobility challenges experienced in equity-deserving neighbourhoods and the types of road safety improvements that can increase safety for vulnerable road users.¹⁷

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