Injuries from Carbon Monoxide Poisoning in Ontario

Ontario Injury COMPASS
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Analysis and discussion of injury issues in the province

Understanding the Issue

Between 2011-2015, there were more than 4,000 emergency visits related to Carbon Monoxide Poisoning in Ontario.

This Ontario Injury Compass presents emergency visit data for injuries related to Carbon Monoxide (CO) Poisonings in Ontario between 2011-2015, with an emphasis on the latest year of available data (2015) .

5-year Trend: 2011-2015

Considering the counts and rates for ED visits over the 5 years from 2011 to 2015, the trend for injuries related to carbon monoxide poisoning has generally increased (Figure 1). ED visits for these injuries increased by 13%, from 705 in 2011 to 831 in 2015. Ontario's population increased by 4% in the same time period. The crude rate for ED visits based on annual population estimates ranged from 5.32 per 100,000 in 2011 to 6.03 per 100,000 in 2015.

Risk Factors

Age

Children (0-9 years) and adults (20-44 years) were most vulnerable to injury related to carbon monoxide poisoning (Table 1) in 2015. Ontarians aged 25-44 years had the highest rate of ED visits for these injuries (7.80 per 100,000), followed by 20-24 year olds (7.75 per 100,000) and 0-9 year olds (6.94 per 100,000).

Sex

In 2015, males accounted for 56% of ED visits related to carbon monoxide poisoning. (Figure 2) Males had higher numbers of ED visits compared to females in every age group except for children between 10-14 years. Of particular concern were males aged 25-44 years, with 1.47 times more CO poisoning related ED visits than females. (Figure 2)

FIGURE 1. ED visits for CO Poisoning, counts and rates, NACRS, Ontario, 2011 - 2015

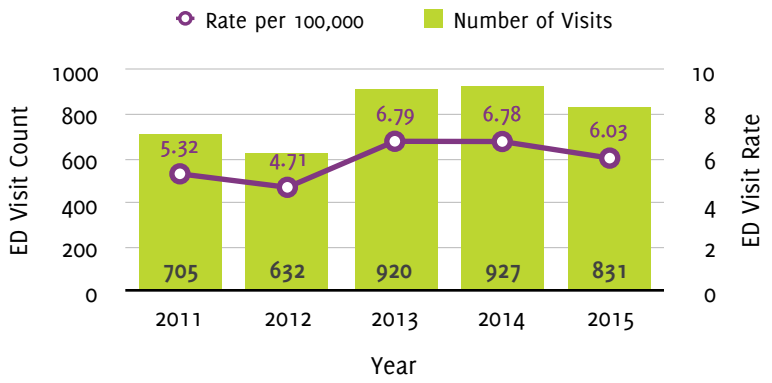
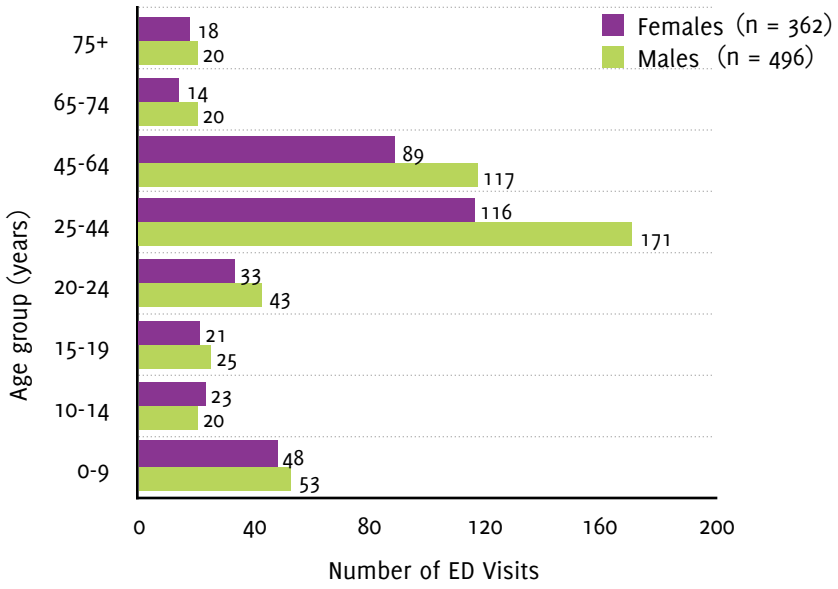


TABLE 1. ED visits for CO Poisoning, age-specific rates, NACRS, Ontario, 2015

Age Group	0-9	10-14	15-19	20-24	25-44	45-64	65-74	75+
ED Visit Rate per 100,000	6.94	5.83	5.44	7.75	7.80	5.31	2.75	3.90

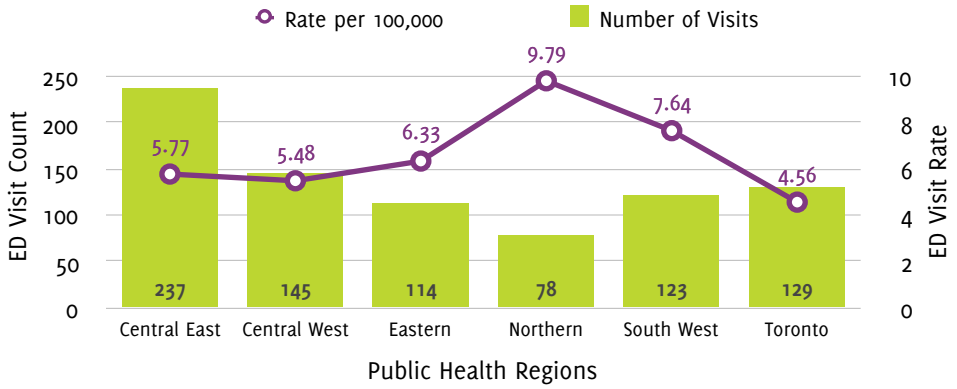
FIGURE 2. ED visits (counts) for CO Poisoning, by age group and sex, NACRS, Ontario, 2015



Regional Distribution

Among the 6 public health regions in Ontario, the Central East region had the highest count of 237 ED visits related to carbon monoxide poisoning in 2015, followed by Central West at 145 and Toronto at 129. (Figure 3) While the Northern region accounted for the lowest ED visit count (78), crude rate analysis reveals that it had the highest rate of ED Visit Rate at 9.79 per 100,000 of the population. (Figure 3)

FIGURE 3. ED visits for CO Poisoning, by Public Health Regions, NACRS, Ontario, 2015



Prevention Strategies

Education

Carbon Monoxide (CO) is a colourless, odourless, and tasteless gas that can be deadly. Common sources of carbon monoxide in and around the home include fuel-burning appliances such as furnaces, gas or wood fireplaces, hot water heaters/boilers, stoves, barbeques, portable fuel-burning heaters, lawnmowers, generators as well as automobiles. Low-level short-term exposure to CO can cause symptoms similar to the flu, just without the fever. These symptoms include headache, nausea, tiredness, shortness of breath and/or impaired motor function. Prolonged exposure can lead to dizziness, chest pain, poor vision and difficulty thinking while high-level exposure can lead to brain damage and/or death.[2]

Engineering

There are many changes one can make to the immediate environment to prevent CO poisoning.

- Install CO alarms around sleeping area of the home, especially in the vicinity of fuel-burning appliances or the garage. Replace batteries to ensure that the CO alarm is functional at all times.[3]
- Maintain all fuel burning appliances in proper working condition and have them inspected regularly by a qualified professional to prevent hazardous CO emission.[3]
- CO poisoning related injuries and deaths spike each winter in Canada. Ensure proper ventilation within and outside the home, when using a fuel-burning appliance, and avoid idling the car inside a garage.[3]

Enforcement

Bill 77 also known as the *Hawkins Gignac Act [Carbon Monoxide Safety]* requires the use of CO alarms in all homes in Ontario. The amended Ontario Fire Code of 2014 now includes requirements to lessen the risk created by the presence of unsafe levels of CO within single dwelling and multi-unit buildings. Learn more here. Failure to comply with CO alarm requirements outlined in the Ontario Fire Code could result in a ticket of $360, or a fine of up to $50,000 for individuals and $100,000 for corporations.[4]

Methodology

ED visit data were obtained from the National Ambulatory Care Reporting System (NACRS) at CIHI. Data are from calendar year 2015 (January 1, 2015 - December 31, 2015). These data, as well as population estimates for calculating rates, were accessed using IntelliHEALTH ONTARIO through the Ministry of Health and Long-Term Care. ICD-10-CA coding was used to isolate carbon monoxide poisoning (T58).

References

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