

Ambulance use in Ontario

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Objectives

- To present the profile of ambulance use in Ontario and explore the regional variation in ambulance use
- To explore the patient factors associated with ambulance use
- To determine the relationship between ambulance use and emergency department (ED) resource utilization

Methodology

- **National Ambulatory Care Reporting System (NACRS FY07/08, CIHI)**
 - administrative, clinical and demographic information on ambulatory care event;
 - ON and selected NS, PEI, BC and YT facilities;
 - 186 facilities, 176 were located in ON;
 - Nearly 10 million records submitted to NACRS per fiscal year. 60% are ED records.

5.5 million from ED → 5.3 million records from ON ED

Methodology

- **ON population estimates 2007** (Statistics Canada)
- **ON local health integration networks (LHINs) population estimates 2006** (Statistics Canada)

Methodology

- **Admit via ambulance**
 - Air ambulance
 - Ground ambulance
 - Combination of any of the above

More than 99.5% of ambulance use was by ground.

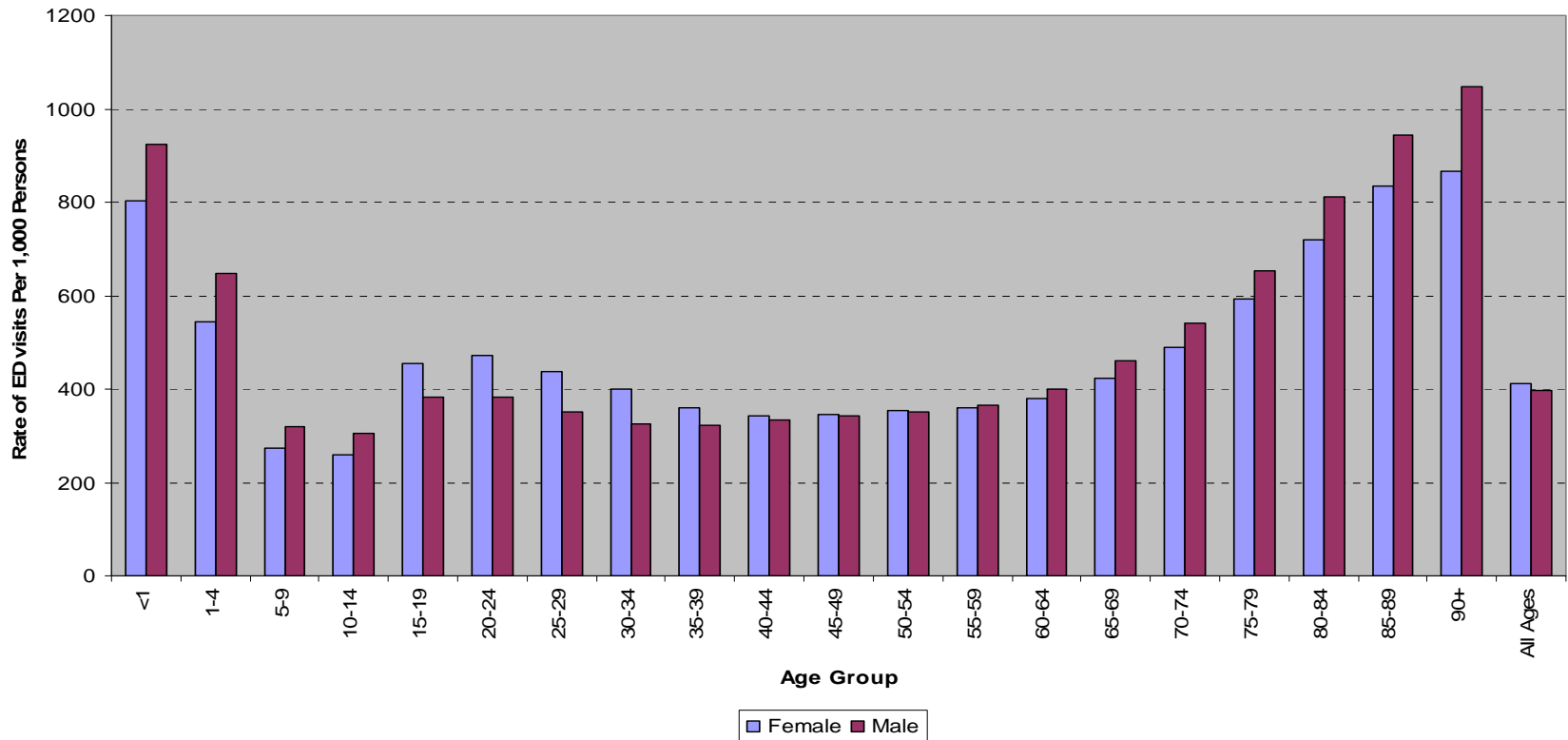
Methodology

- **CTAS Triage level (I-V):** resuscitation, emergent, urgent, less-urgent and non-urgent
- **Wait time:** start time (earlier of registration time and triage time) → initial time of physician assessment
- **Time under care:** initial time of physician assessment → disposition time / time for patient left ED

Results

- **Profile of Ambulance Use in Ontario**
- Risk Factors Associated with Ambulance Use
- Ambulance Use and ED Resource Utilization

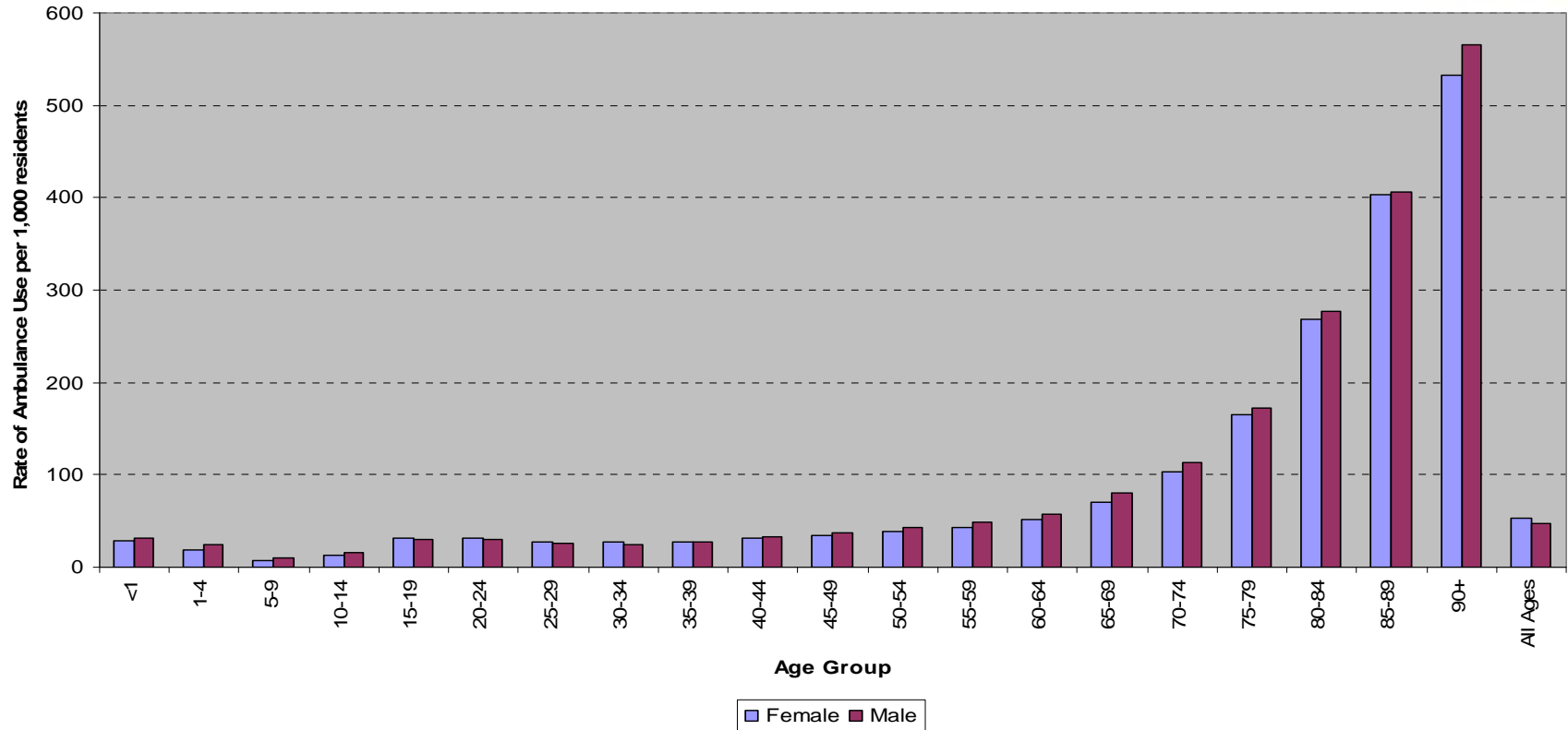
Rate of Emergency Department Visits Per 1,000 Residents, by Age Category and Sex, Ontario, 2007-2008



Source

FY 2007-2008 National Ambulatory Care Reporting System, Canadian Institute for Health Information.
2007 Census of Population, Statistics Canada.

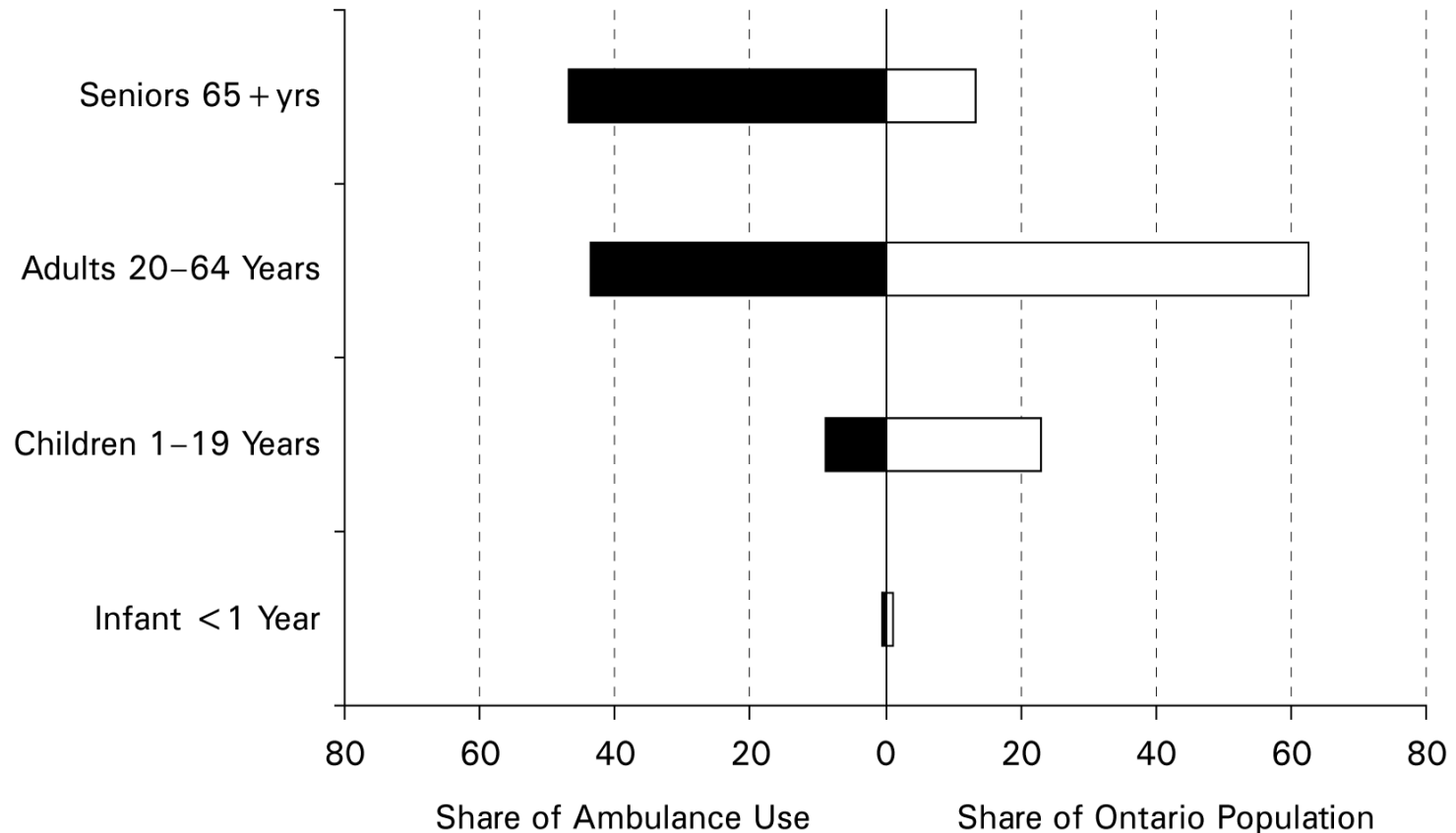
Rate of Ambulance Use Per 1,000 Residents, by Age Category and Sex, Ontario, 2007-2008



Source

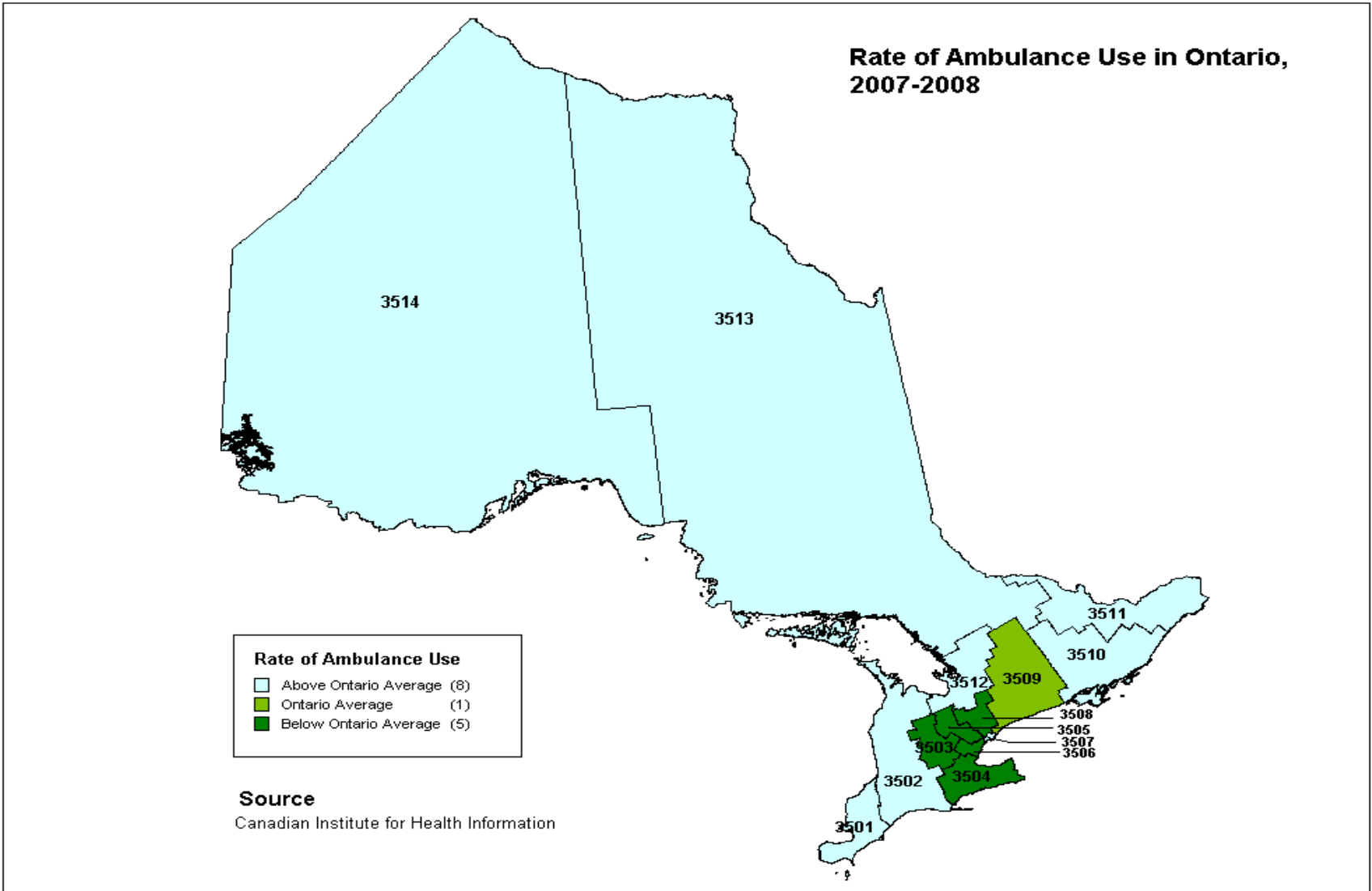
FY 2007-2008 National Ambulatory Care Reporting System, Canadian Institute for Health Information.
2007 Census of Population, Statistics Canada.

Share of Ambulance Use vs. Share of Population



Source

FY 2007-2008 National Ambulatory Care Reporting System, CIHI.
2007 Census of Population, Statistics Canada.



Source
FY 2007-2008 National Ambulatory Care Reporting System, CIHI.
2006 Census of Population by LHIN, Statistics Canada.

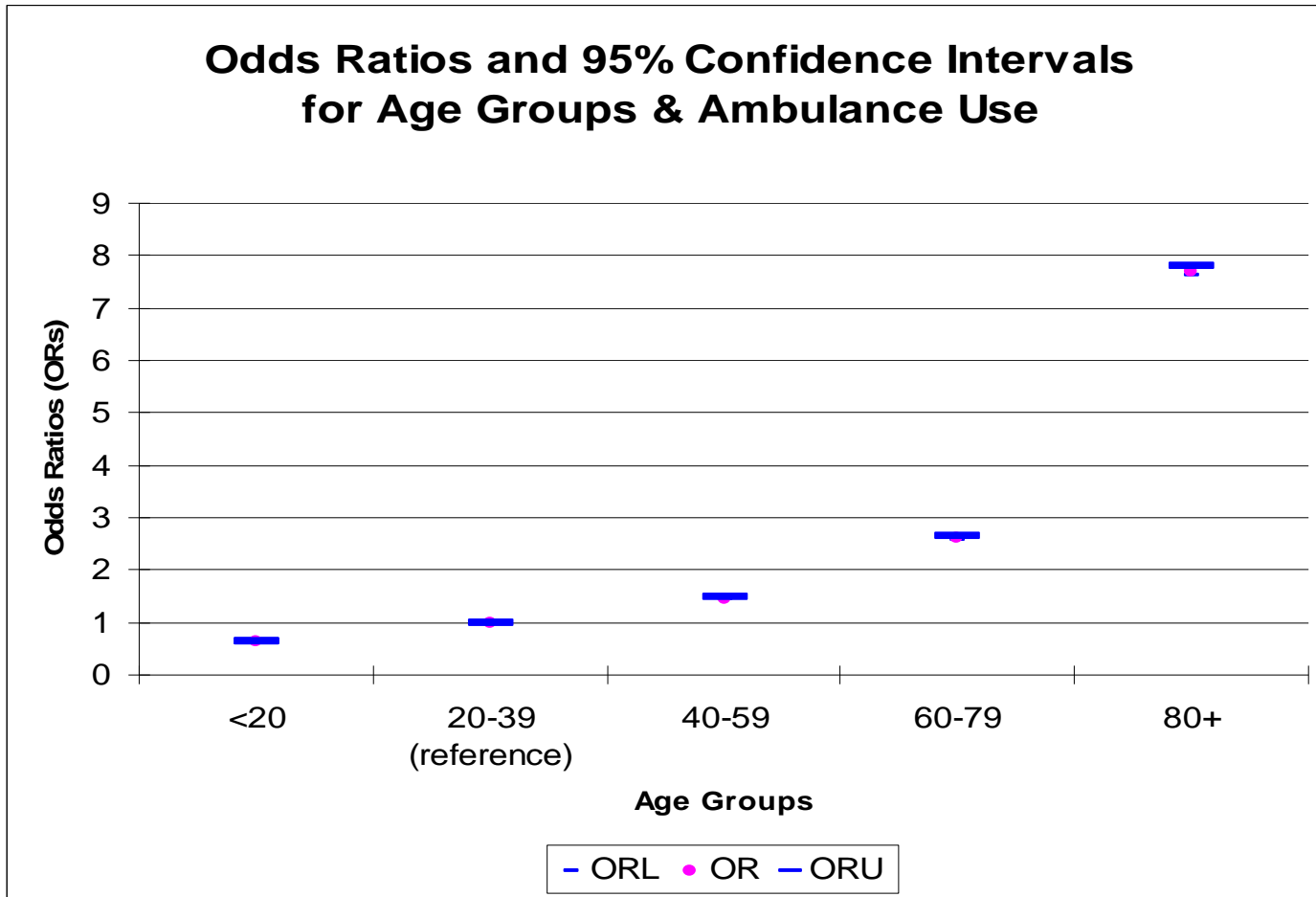
Rate of Ambulance Use Per 1,000 LHIN Residents

LHIN	Use rate
Mississauga Halton	35
Central West	39
Central	41
Waterloo Wellington	44
Hamilton Niagara Haldimand Brant	47
Central East	49
Ontario Average	49
South West	53
Champlain	56
Erie St. Clair	58
South East	58
North East	64
Toronto Central	64
North Simcoe Muskoka	65
North West	74



Results

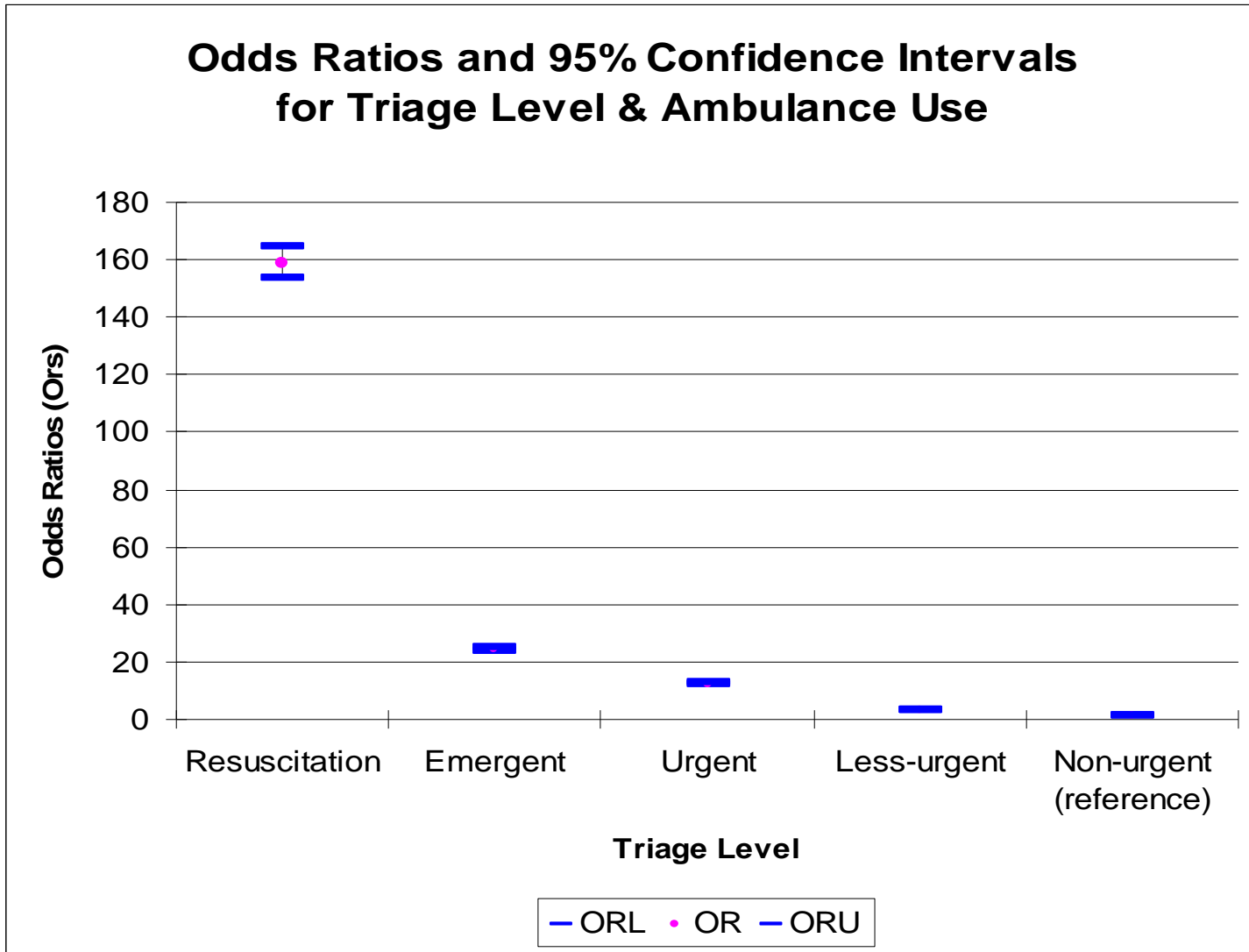
- Profile of Ambulance Use in Ontario
- **Risk Factors Associated with Ambulance Use**
- Ambulance Use and ED Resource Utilization



There was no significant difference in ambulance use between males and females.

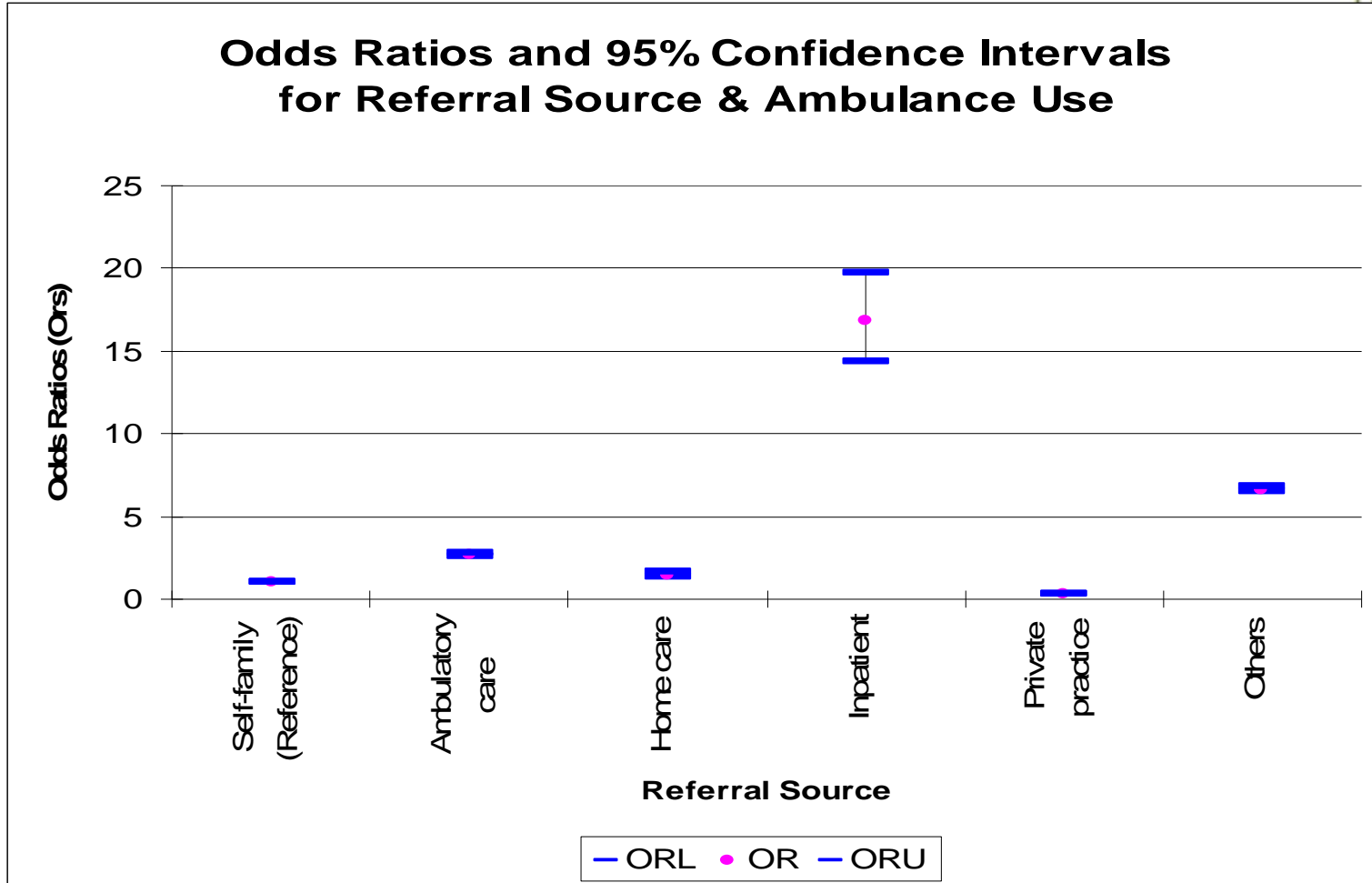
Source

FY 2007-2008 National Ambulatory Care Reporting System, CIHI.



Source

FY 2007-2008 National Ambulatory Care Reporting System, CIHI.



Source

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Season, Weekday and Time of the Day and Admission via Ambulance

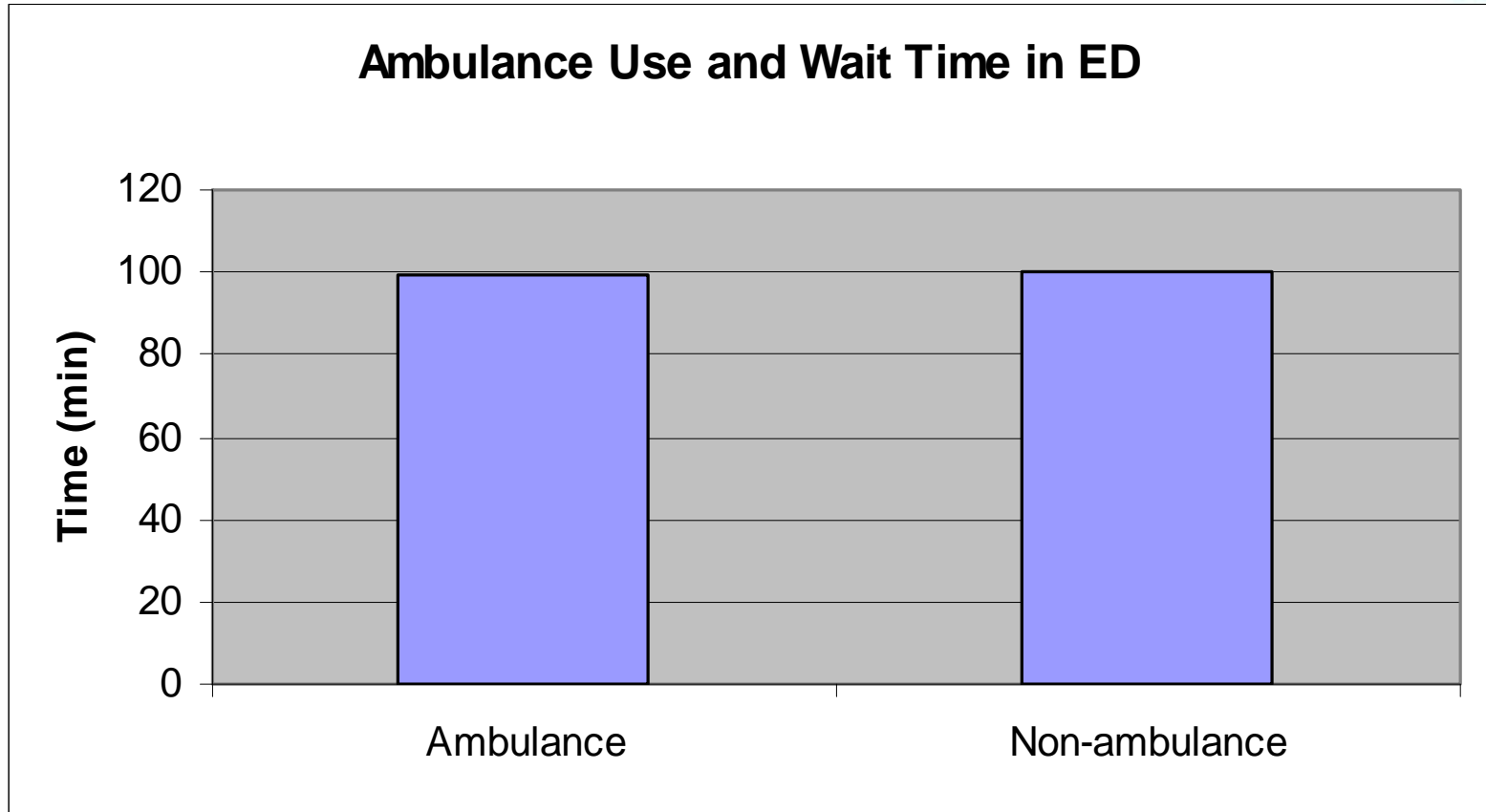
Variables	Ambulance use rate (%)	Adjusted odds ratios and 95% confidence interval*
Season		
Spring	12.19	1.01 (1.00, 1.02)
Summer	11.87	Reference
Fall	12.29	1.02 (1.01, 1.03)
Winter	13.04	1.08 (1.07, 1.09)
Weekday		
Sunday	12.47	1.09 (1.08, 1.10)
Monday	11.59	Reference
Tuesday	12.18	1.06 (1.05, 1.07)
Wednesday	12.22	1.06 (1.05, 1.07)
Thursday	12.50	1.07 (1.06, 1.09)
Friday	12.63	1.09 (1.07, 1.10)
Saturday	12.87	1.12 (1.11, 1.13)
Time of the day		
1am-6am	21.66	2.24 (2.22, 2.26)
7am-12pm	10.20	Reference
1pm-6pm	11.66	1.15 (1.14, 1.16)
7pm-12am	13.17	1.44 (1.43, 1.45)

Source

FY 2007-2008 National Ambulatory Care Reporting System, CIHI.

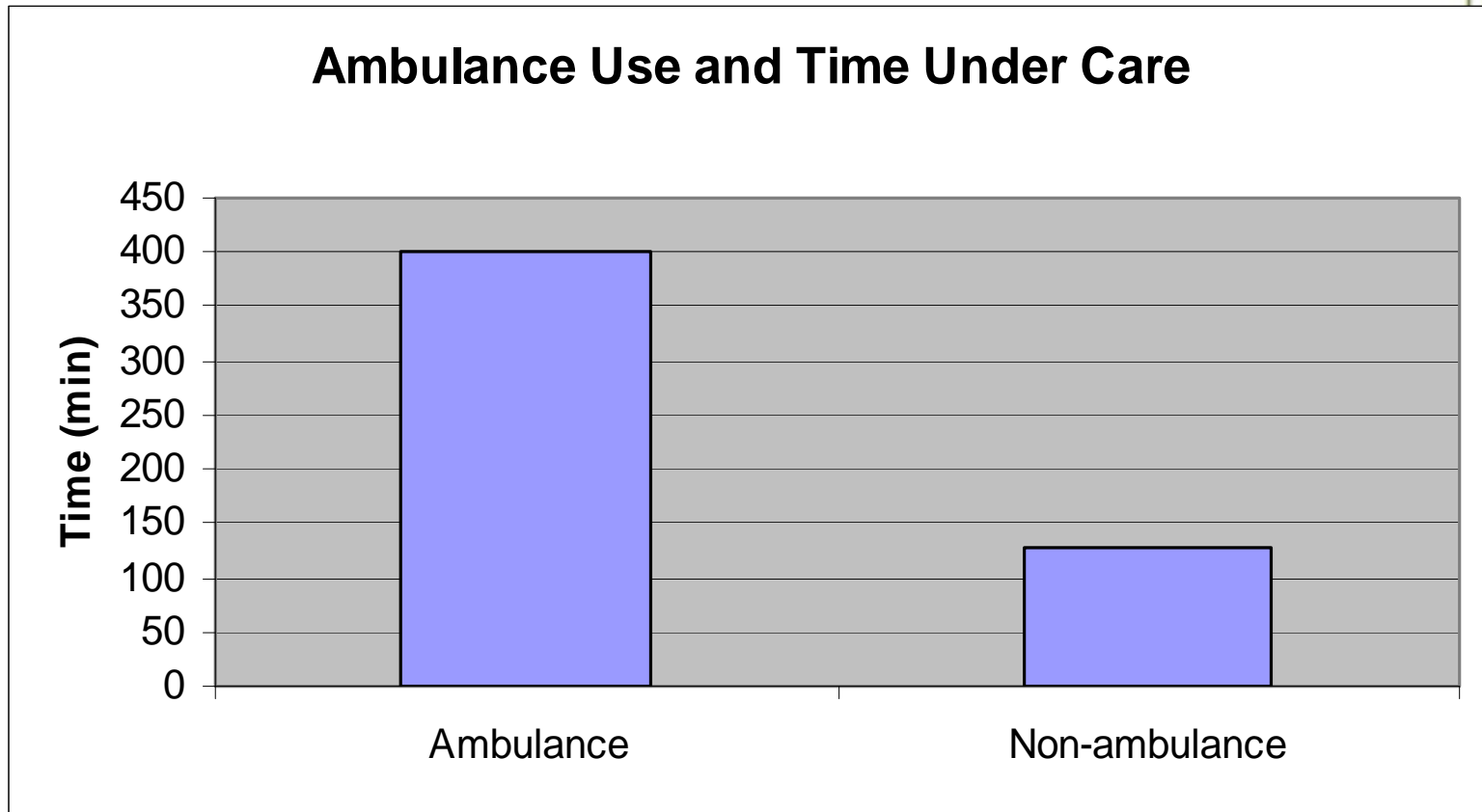
Results

- Profile of Ambulance Use in Ontario
- Risk Factors Associated with Ambulance Use
- **Ambulance Use and ED Resource Utilization**



Source
FY 2007-2008 National Ambulatory Care Reporting System, CIHI.

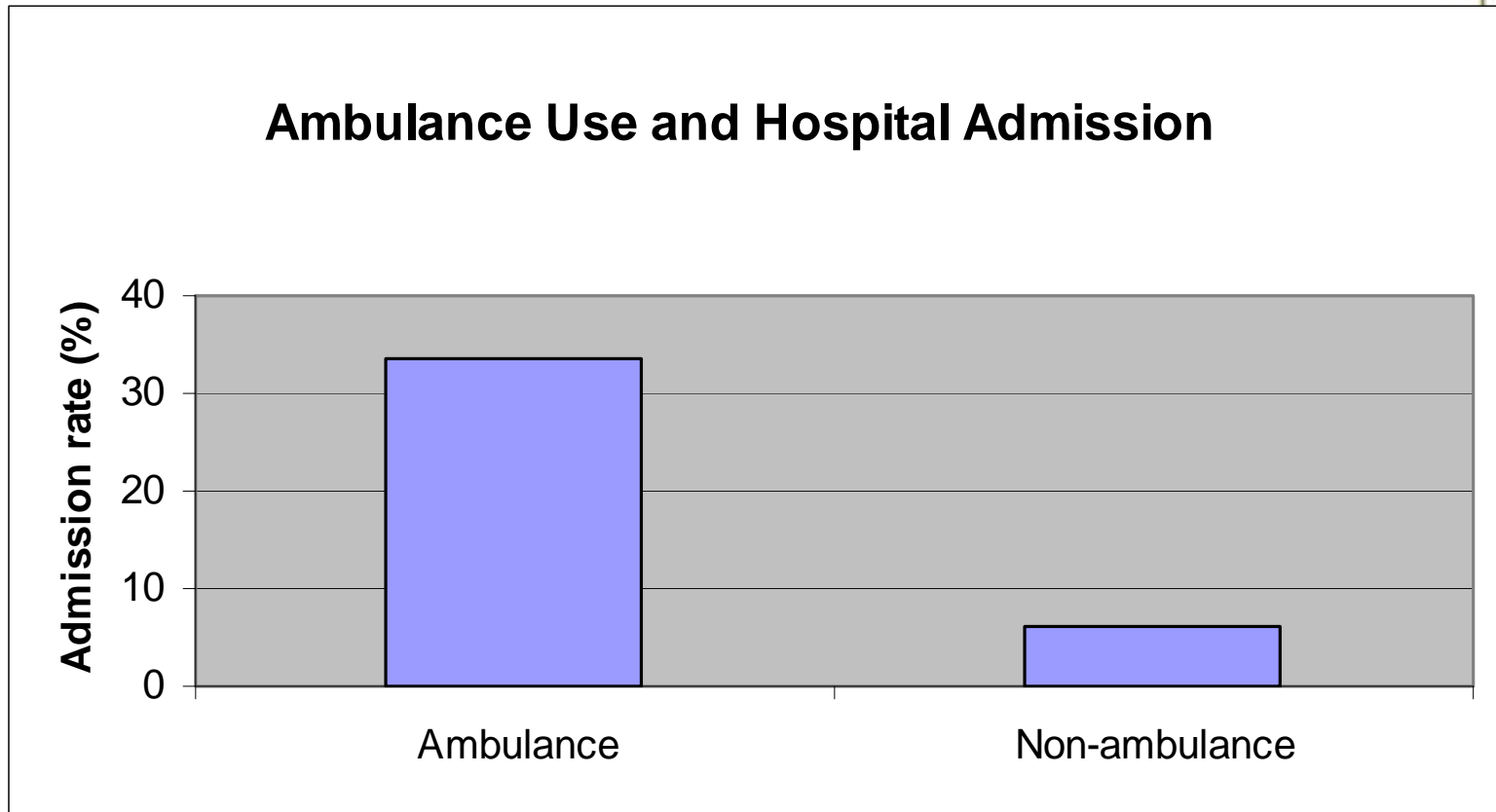
Adjusted difference (minutes): -0.8 (-0.8, -0.7)



Source

FY 2007-2008 National Ambulatory Care Reporting System, CIHI.

Adjusted difference (minutes): 274.7 (274.4, 275.0)



Source
FY 2007-2008 National Ambulatory Care Reporting System, CIHI.

Adjusted odds ratio: 2.80 (2.78, 2.82)

Conclusion

- Both children and seniors are heavy users of the ED, but only seniors are heavy users of ambulances.
- There is regional variation in ambulance use.

Conclusion

- Risk factors for ambulance use:
 - Older age
 - Higher CTAS triage level
 - Referred from inpatient or ambulatory care
 - Admitted at night, weekend or winter

- Ambulance use was associated with:
 - Longer time under care
 - Higher rate of admission as inpatient

Thanks!

Further questions:
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