

ONTARIO AND SUB REGIONAL TRAUMATIC BRAIN INJURY (TBI) CARE REPORT CARDS AND PROVINCIAL AND REGIONAL TRENDS IN TBI CARE

This report describes the landscape of publicly funded moderate to severe traumatic brain injury (TBI) treatment and rehabilitation over five years (2013/14 to 2017/18) through a provincial and regional lens. The overarching purpose of this report is to introduce the first provincial report card on quality of care for patients with TBI with the intention of highlighting areas for further investigation and capacity building with a view towards improved outcomes for patients with TBI. While this report was created using the most recent complete fiscal year data (2017/18), given the recent reorganization of Ontario's health care system, the findings are presented for the now dissolved fourteen Local Health Integration Networks (LHINs) as well as clustered in the current five transitional geographic regions.

Overall, this report shows increases in incidence of admissions for TBI from 1.86 per 1,000 population in 2013-14 to 2.39 per 1,000 population in 2017-18. Demographic trends show increasing incidence of TBI in patients aged 16-64 years and female patients. Geographically, the highest incidences were found in the more northern and rural LHINs including North Simcoe Muskoka, North East and North West at 3.42, 3.40 and 3.38 per 1,000, respectively. There is substantial mortality (13.32%) for those admitted to the hospital with TBI in the province. The annual risk-adjusted mortality rate within 30 days of admission for TBI patients rose slightly across the 5-year time span, from 12.77 to 13.32 deaths per 100 patients. Notably, the TBI mortality rate in 2017/18 reached 25.98% in the North West LHIN.

According to the results of this report, once a patient with TBI is admitted to acute care, approximately 25-30% of the total length of stay (LOS) days were alternate level of care (ALC) days suggesting these patients are waiting for rehabilitation and community care. This proportion was as low as 12.90% in the South West LHIN but reached 36.34% in Mississauga Halton LHIN. In 2017/18, less than 20% of patients with TBI were admitted to inpatient rehabilitation once discharged from acute care in Ontario; this was less than the previous three fiscal years. Greater proportions of male patients were discharged from acute care and admitted to inpatient rehabilitation than female patients across all five years. Provincially, there was a five-day decrease from 2013-14 (22 days) to 2017-18 (17 days) in the number of days from TBI onset and admission to inpatient TBI rehabilitation. However, at the LHIN-level in 2017/18 the number of days varied from 10.5 to 34.5. Older (65+ years) and female patients were admitted to inpatient TBI rehabilitation sooner than their younger (16-64 years) and male counterparts.



Once discharged from acute or inpatient settings, it took an average of 9 days for a person with TBI to receive their first homecare therapy visit in Ontario; notably, in some LHINs patients waited nearly a month (27 days) for their first visit. Access to care disparities are particularly evident for northern and more rural LHINs where individuals are waiting longer to receive both general and specialized care after discharge. Similar disparities were observed for other follow-up assessments, some patients waited an average of 30 days to meet with their general practitioner or family physician, and 180 days post-discharge to see a specialist. While the provincial mean for these follow up assessments were 76.12% and 67.32%, respectively, in certain LHINs these proportions were as low as 42.87% and 55.80%.

The trends show that those aged 65+ years have their homecare therapy visit sooner after discharge than younger patients (16-64 years). The same trend is evident for sex, with men receiving homecare therapy visits sooner than women. Finally, there was a small reduction in the provincial age- and sex-adjusted all cause readmission rate at 30 days for patients with TBI over the 5-year period from 4.68% to 4.18%. Of the fourteen LHINs, North East ranked the highest on the most indicators (5,8a,9,10), followed by South West (2,3,8b), Waterloo Wellington (3,6,9), and Central West (1,8a,9) each with highest rankings in three of eleven indicators. Again, lower ranking LHINs tended to be in rural or northern areas.

The findings of this report align directly with the Ministry of Health's current mandates and have key system implications for improving the efficiency of the TBI care continuum. TBI causes a complex mix of cognitive, emotional and physical changes related to the typical changes in the brain. We found gaps in care between inpatient, outpatient and community care. Collaboration with an interdisciplinary team of stakeholders provides the solution to sustainably increase the ROI of public health expenditures and improve TBI outcomes. The complete list of recommendations can be found on page 57. Key recommendations include:

- Improving communication and staffing between in-patient and community peer supports to decrease the number of days spent at an alternative level of care,
- Increasing the mandated number of home care visits, and
- Utilization of the annual TBI Report Card by decision makers when determining capacity and resource needs for the TBI care continuum.



Ontario TBI Report Card, 2017/18

Indicator no.	Care continuum category	Indicator	2017/18 (2016/17)	Variance across LHINs (min-max)	Highest ranking LHINs ¹
1	Prevention	Annual age- and sex- standardized incidence rate for TBI per 1,000 population (%)	2.39 (2.35)	1.85-3.42	5, 8
2	Prevention	Annual risk-adjusted mortality rate within 30 days of admission for TBI ² (%)	13.32 (13.54)	10.98-25.98	2, 12
3	Acute management	Proportion of alternate level of care days to total length of stay in acute care (%)	24.31 (27.44)	12.90-36.34	2, 3
4	Acute management	Proportion of acute TBI patients discharged from acute care and admitted to inpatient rehabilitation (%)	19.97 (21.16)	12.68-28.52	1, 7
5	Rehabilitation	Median days from TBI onset and admission to inpatient TBI rehabilitation	17(19)	10.5-34.5	13, 9
6	Rehabilitation	Median days from discharge from acute or inpatient rehabilitation to first homecare therapy visit	9 (9)	5-27	1, 3
7	Rehabilitation	Median number of homecare therapy visits among TBI patients discharged from inpatient acute inpatient rehabilitation	4 (4)	3-7	12, 6
8	Reintegration	a) Proportion of TBI patients discharged from inpatient rehabilitation with a GP/FP follow-up assessment within 30 days of discharge (%)	76.12(75.13)	42.86-87.30	13, 5
		b) Proportion of TBI patients discharged from inpatient rehabilitation with a follow-up assessment with a specialist within 180 days of discharge (%)	67.32(68.98)	55.80-82.56	2, 10
9	Reintegration	Proportion of TBI patients discharged from acute care to CCC/LTC ³ (%)	5.70 (4.87)	1.29*-9.64	3, 5, 13
10	Reintegration	Mean total LOS days in institutional-based care in the first 90 days from TBI onset ³ (%)	7.92 (7.62)	5.29-9.09	8, 13
11	Reintegration	Age- and sex-adjusted all-cause readmission rate at 30 days for patients with TBI (%)	4.18 (4.18)	3.02-4.99	6, 11

*Exact counts suppressed for privacy, the average of the maximum and minimum value presented.

¹ The top two ranked LHINS. Low results desired for indicators 1,2,3,5,6,9,11.

² Patients who were alive when they arrived at the emergency department and admitted to hospital were included in the 30-day mortality rate.

³ Excluding patients originating from LTC/CCC.

Note: Complex continuing care (CCC); Length of stay (LOS); Long-term care (LTC); Traumatic brain injury (TBI).

LOCAL HEALTH INTEGRATION NETWORKS (LHINs)

- | | |
|-------------------------------------|--------------------------|
| 1. Erie St. Clair | 8. Central |
| 2. South West | 9. Central East |
| 3. Waterloo Wellington | 10. South East |
| 4. Hamilton Niagara Haldimand Brant | 11. Champlain |
| 5. Central West | 12. North Simcoe Muskoka |
| 6. Mississauga Halton | 13. North East |
| 7. Toronto Central | 14. North West |

Traumatic Brain Injury (TBI) Report Card Policy Brief

TBI LANDSCAPE IN ONTARIO



Traumatic brain injury (TBI) is damage to the brain caused by a traumatic event such as a blow to the head, a fall, a motor vehicle or sports related injury.

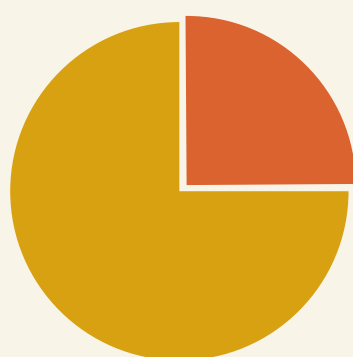


2.4/1,000 Ontarians were admitted to hospital with a TBI in 2018



TBI incidence and mortality on the rise in Ontario

25% of days spent in hospital are at the wrong level of care (ALC)



Costs an extra \$1,540 per person



Delays access to rehab



Reduces acute care bed availability

Median Days to First Homecare Visit

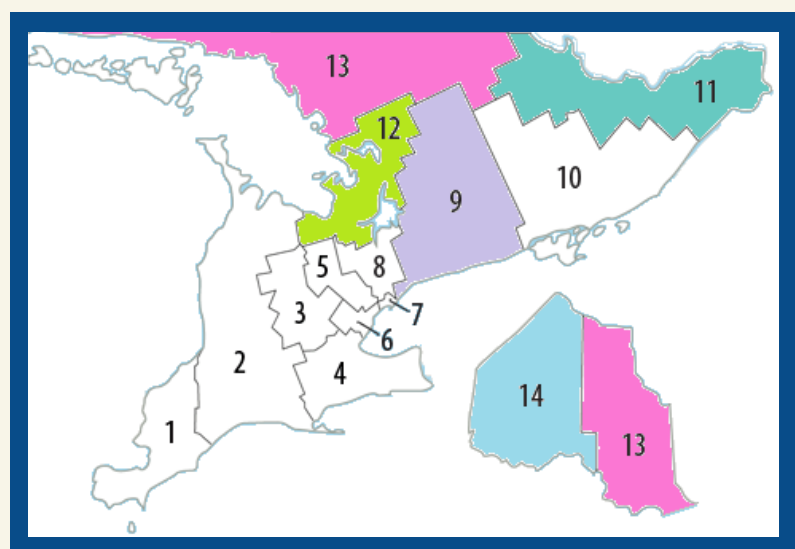
9

Median Number of Homecare Visits

4

Longest Homecare wait times (days) in Ontario

27



Rural LHINs have highest rates of incidence, mortality, and delays to care

KEY RECOMMENDATIONS

- ✓ Shift from a population-based model to demand-based to improve health equity in rural and northern regions
- ✓ Improve care continuum flow to reduce ALC days and wasted resources
- ✓ Consult the annual TBI Report Card when determining resource allocation for the TBI care continuum
- ✓ Increase the number of mandated homecare visits from 4 to reduce hospital readmission rates

Read the full report at:
onf.org/tbi-report-card



Ontario Neurotrauma Foundation
Fondation ontarienne de neurotraumatologie