

HEAD INJURIES ON MONTRÉAL ROADS

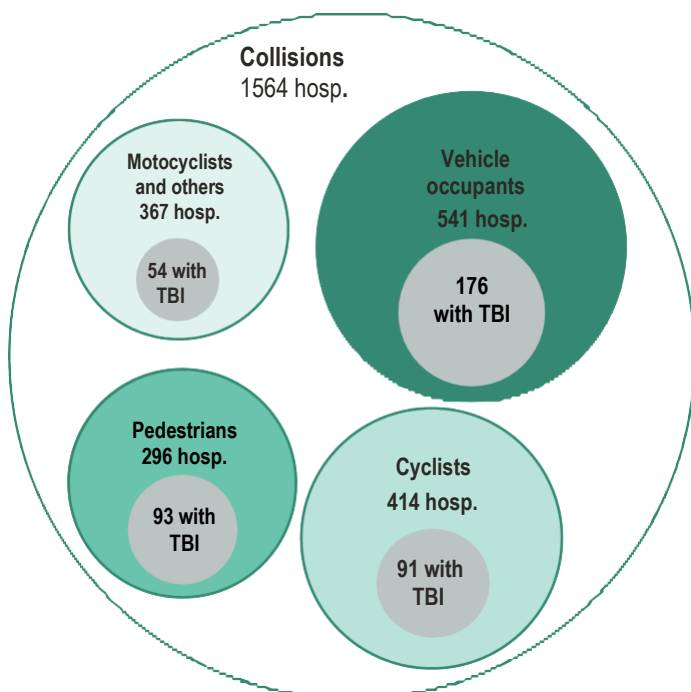
DIRECTION RÉGIONALE DE SANTÉ PUBLIQUE
Service Environnement urbain et saines habitudes de vie

Car traffic exposes pedestrians, cyclists and motorists to risks of collision and injury.
These results are drawn from a recent report *Prévenir les blessures à la tête sur le réseau routier – Pertinence des stratégies environnementales*¹

ROAD USER HOSPITALIZATIONS DUE TO TRAUMATIC BRAIN INJURY (TBI)

In the Greater Montréal area, according to hospitalization records, the majority of people with TBI resulting from collision are motor vehicle users (e.g. car drivers, motorcyclists). In the period from 2006 to 2013, pedestrians and cyclists accounted for fewer than half (44%) of road users hospitalized with TBI.

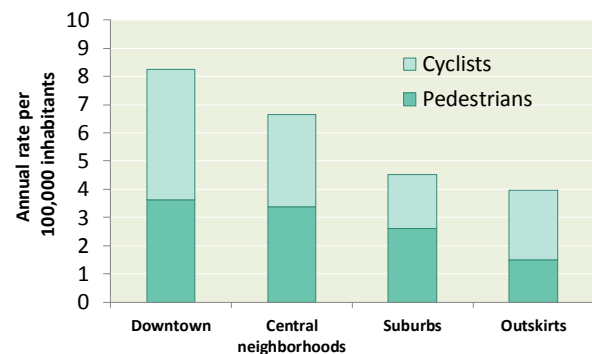
Figure 1 – Annual number of hospitalizations following collisions, by type of road user and presence of traumatic brain injury (TBI)
(Greater Montréal area 2006–2013)



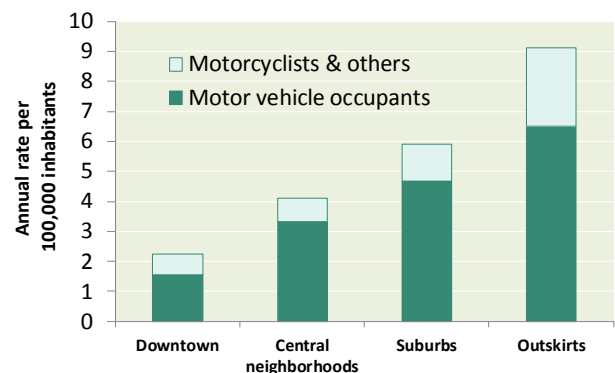
Hospitalization rates for pedestrians and cyclists with TBI are higher among residents of the downtown and central areas than among people living in the outskirts. Conversely, TBI-related hospitalization rates for motor vehicle users are higher among people living in the suburbs and outskirts of Montréal. The geographic variations reflect the distances road residents in those different sectors travel by car, on foot or by bicycle.

Figure 2 – Hospitalization Rates Among Road Users with Traumatic Brain Injuries (TBI), by area of residence
(Greater Montréal area 2006–2013)

a) Non-motorized road users



b) Motor vehicle users



LOCATION ON THE ROAD NETWORK WHERE TBI AND HEAD INJURIES OCCUR

On the island of Montréal's road network, about two-thirds of road users (motorists, motorcyclists, pedestrians and cyclists) who have experienced TBI (65%) or head injuries (67%) were injured on a major road (arterial).² At intersections with very high vehicle volumes (fifth quintile), 31 times more road users sustained TBI (Figure 3) and 30 times more suffered head injuries (Figure 4) than at very low volume intersections (first quintile). These results suggest that priority interventions are needed at busy arterials and intersections to reduce the numbers of TBI and head injuries on Montréal's road network.

Figure 3 – Average annual number of hospitalizations of road users with traumatic brain injuries, by estimated volume of vehicles at intersections (island of Montréal, 2006-2013)

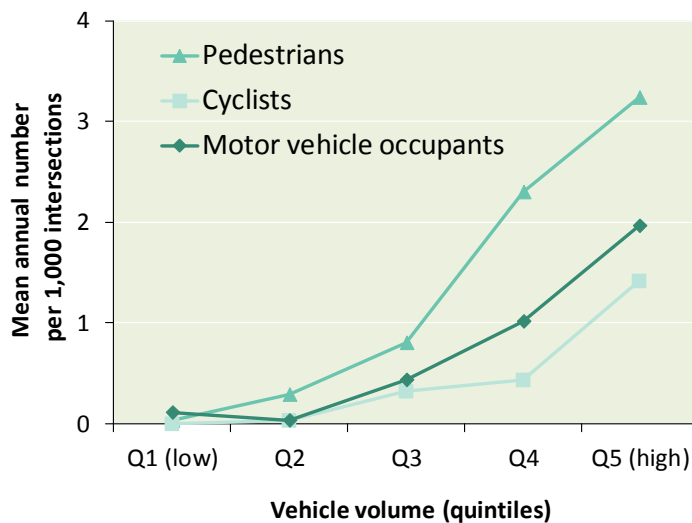
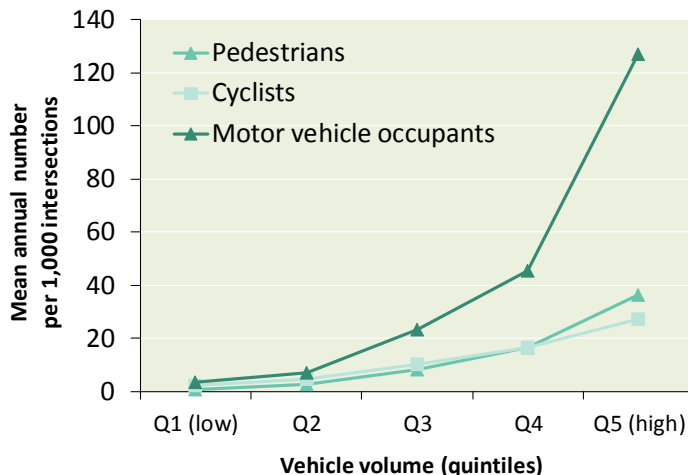


Figure 4 – Average annual number of road users with head injuries requiring ambulance services, by estimated volume of vehicles at intersections (island of Montréal, 1999-2008)



EFFECTIVE STRATEGIES FOR THE URBAN ENVIRONMENT

Risk reduction at the source involves overall reduction in car use and vehicle volume.³ Appropriate measures to reduce vehicle speed can lessen the probability of collisions as well as severity of injuries. Specific infrastructures for cyclists (e.g. cycle tracks) or pedestrians (e.g. medians) can diminish exposure to vehicles on arterials. In urban settings, a modal shift from car to public transport would improve road safety for everyone.

¹ Morency, P., Dubé, A. S., Tessier, F., Goudreau, S., Plante, C. *Prévenir les blessures à la tête sur le réseau routier – Pertinence des stratégies environnementales*, Direction régionale de santé publique de Montréal, CIUSSS du Centre-Sud-de-Montréal, 2017.

² Three different data sources were used: Hospitalization records (MSSS, 2006–2013); police accident records (SAAQ, 2006–2013); ambulance responses (Urgences-santé, 1999–2008). The Montréal arterial road network definition of arterials is used (CMM, 2013).

³ *Vers l'amélioration de la sécurité routière pour tous*. DRSP position paper presented at a public consultation on road safety held by the SAAQ. 36 p., 27 February 2017.

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