OMA Policy Paper

Enhancing cycling safety in Ontario

Introduction

ONTARIO'S DOCTORS HAVE LONG ADVOCATED THAT PATIENTS FIND TIME FOR EXERCISE, AND HAVE SUPPORTED POLICIES WHICH FACILITATE THIS ENDEAVOUR. INCREASING CONCERN ABOUT THE CHRONIC DISEASES THAT RESULT FROM BEING OVERWEIGHT AND INACTIVE REQUIRES A MORE DETAILED EXAMINATION OF ACTIVITIES THAT CAN PROVIDE MUCH NEEDED EXERCISE FOR ONTARIANS, AND THE BARRIERS THAT CURRENTLY EXIST TO PARTICIPATING IN THIS FORM OF EXERCISE.

Bicycling is an activity that offers the opportunity for both recreational exercise, and exercise that can be incorporated into the tasks of daily life. It provides an easy and cost-effective way for many Ontarians to meet Canada's physical activity guidelines, is accessible to young and old alike, and burns more calories than many other physical activities (see Appendix). However, safety concerns pose a barrier to cycling, as thousands of Ontario cyclists are injured each year.

Ontario's doctors have found that those who cycle for utility or for pleasure are at risk of injury on Ontario's roads, and those who do not cycle regularly report that they are dissuaded by their perceived lack of safety. The OMA hopes to encourage more people to take up this beneficial activity by recommending a number of actions that should be taken to improve cycling safety.

Collisions and injuries to cyclists

Cycling can be a fun and accessible way for people to add physical activity to their daily lives. Bicycles can replace cars or public transit for many trips that people need to take to school, work, or when running errands. However, streets can be dangerous for cyclists who have to make a place for themselves on the road with cars and trucks.

One study reports that "all surveys in both Canadian and American cities clearly indicate that more bike paths and lanes would most encourage people to cycle."[1] The perception that cycling on the road is dangerous is an important barrier to the promotion of this active form of transportation and ultimately a barrier to a healthier population.[2]

What people fear the most is the chance of getting hit by a car or larger vehicle, and in Ontario this fear is currently warranted. Studies have shown that the perception of safety on the streets is a factor which can encourage or discourage cycling. When people perceive a safety issue, they are less likely to cycle themselves, and will discourage their children from doing so.

Many cyclists are injured and some killed each year in Ontario. According to the Ontario Injury Compass 2009 special report on cycling, there were 26,300 emergency department visits and 1,374 hospitalizations for cycling injuries in that year. These statistics translate into a provincial rate of 11.1 hospitalizations per 100,000 people.[3]

Whereas falling from the bicycle was the most common cause of injury, 20% of all cycling injury hospitalizations were the result of a collision with a motor vehicle. Of these hospitalizations, the most common injuries were those of the upper limbs, followed by the lower limbs and head injuries. The majority of cycling emergency department visits are for children and youth.

The Ontario Road Safety Annual Report (ORSAR), published by the Ministry of Transportation, looks specifically at collisions. The most recent data show that 12 cyclists were killed and 2,015 injured in reportable bicycle-vehicle collisions in 2008.[4] Although still high, the reported injuries have decreased since the early 1990s, but bicycle fatalities do not show a clear trend up or down. *Much more has to be done by provincial and municipal transportation departments to make this form of exercise safer.*

Intersections

Although there is evidence of collisions involving bicycles in a variety of traffic settings, intersections pose a particular challenge. Approximately two-thirds of bicycle-car collisions happen at intersections,[5] suggesting that there is either a problem with the way intersections are designed or the way they are used. The rules of bicycle-vehicle rights of way are not clearly understood by all cyclists or all drivers, and it is likely that cyclists may require special consideration in intersection design.

A great deal is already known about how to engineer safer intersections, and some jurisdictions are currently acting on this knowledge. *Transportation planners must be charged with implementing bicycle safety solutions that have been proven in other jurisdictions, and work to solve any additional challenges that intersections pose for cyclists and drivers sharing the road. Similarly, the OMA recommends that both driver and cyclist educators emphasize intersection-specific challenges.*

Where children ride

Collisions happen frequently when cyclists are riding on the sidewalk and cross on the crosswalk rather than using the road and crossing the intersection with traffic. Not surprisingly, these collisions involve children more frequently than adults, and may happen because drivers are watching for pedestrians and do not see the quickly approaching bicycles on the sidewalk.

It is likely that many of the children riding on the sidewalk are doing so because they or their parents perceive the sidewalk as a safer place to be than riding alongside traffic on the road.

The 2003 Toronto Bicycle/Motor-Vehicle Collision Study showed that young cyclists (under age 16) were over-represented in collisions involving cyclists riding into traffic from the sidewalk. In almost 30% of all collisions, the cyclists were riding on the sidewalk immediately prior to the collision. It was determined that young cyclists were much more likely than adults to have been riding on the sidewalk. This will not come as a surprise to parents, who either instruct their younger children to ride on the sidewalk because it is considered safer, or are aware that their older children choose to ride there for the same reason.

Many municipalities currently permit children to ride on the sidewalk. Due to their cycling skill level and inability to understand and adhere to the rules of the road, it is obvious that very young children should not ride in traffic and should be closely supervised when riding on any road, or for that matter on the sidewalk. It should go without saying that children riding on the sidewalk should be taught by their parents to stop whenever they have to cross a roadway, and make sure that it is safe to cross before proceeding. For young children, the parent or guardian should determine when it is safe to cross, and supervise them doing so.

Apart from the dangers of cyclists riding off the sidewalk into traffic, or crossing intersections or crosswalks when drivers don't expect them to be there, sidewalk riding is not ideal for pedestrians or cyclists. If there were safer, designated places to ride, children might feel more comfortable riding on streets and their parents might be more willing to permit this.

As an overall goal, Ontario's doctors believe that a cycling infrastructure of bike lanes and paths should be safe and seamless enough for parents to feel comfortable letting their children ride on the road in these lanes. It is especially important that bike lane networks are connected, and cyclists aren't left stranded in mixed traffic. Bike lanes that are separated by a barrier from vehicle traffic may prove to be a little safer, especially for young cyclists, but the spatial separation from vehicles that comes from a simple painted bike lane is a significant improvement over many current shared road options.

The suburbs

It is important to note that there is a difference for cyclists between major arterial roads in suburban settings and smaller city streets. Suburban thoroughfares are generally larger and traffic travels faster than the tighter downtown streets, regardless of the urban centre examined. These streets are less bicycle-friendly because of vehicle speed issues, but they are also less likely to have bike lanes. They are perceived as more dangerous by cyclists, and by parents of young cyclists. More densely populated urban centres may be where the majority of cycle commuters currently reside, but *investments in cycling infrastructure are equally needed in suburban settings*.

Rural cycling

If suburban roads are considered to be more car-friendly, rural roads present even more of a problem for the cyclists who use them. *Connected networks of roads with paved shoulders would allow for much needed separation between cyclists and fast-travelling vehicles on single-lane rural roads*. Education plays an important part here too though. Both drivers and cyclists need be trained on how to interact on a fast-moving rural road, just like they must better understand the rules of urban intersections.

Bicycle helmets

Approximately 20% of emergency department visits and hospital admissions related to cycling are for head injuries. Although there are other serious types of cycling injuries, significant attention has been given to head injuries and the protection that bicycle helmets provide. In 1995, bicycle helmets became mandatory for everyone in Ontario under 18 years of age. Cycling-related head injuries have decreased by 45% in provinces with mandatory helmet legislation.[6] *The use of bicycle helmets is recommended, on and off road, for children and adults alike*.

That said, the prevention of collisions and falls is the much preferred solution. There are many head injuries that bicycle helmets cannot protect against, so the ultimate goal must be to prevent the falls and collisions that result in cyclists hitting their heads.

Critical mass

Interestingly, bicycle-car collisions (as well as collisions involving other vehicles, and pedestrian fatalities) have been observed to decrease as the number of cyclists increases.[7,8] This is because in places where cycling is well-established, more cyclists on the road has led to both greater driver awareness of cyclists and increased cycling infrastructure, which means fewer cars on the road and lower-speed collisions between different kinds of travellers.

In the Netherlands, for example, where cycling comprises approximately 26% of utility trips (to school, work, the grocery store, etc.), cycling is much safer.[9] The rates of cycling fatalities in the Netherlands have been tracked against rising and falling cycling rates between 1950 and 2005; when the rates of cycling dipped, the rate of cycling fatalities increased, and vice-versa.[10]

Cycling infrastructure

Ontario lags behind four other provinces and two Territories in terms of its bike share of work-trips, and infrastructure may play a part in this.[11] While Quebec has a well-established provincial-municipal partnership for developing cycling routes across the

province called la Route Verte,[12] and the government of British Columbia provides partial funding to specific municipal cycling projects as part of the BikeBC program,[13] Ontario has no such program for cycling infrastructure.

There have been some very small investments by the provincial government to facilitate cycling. Recently (in 2008), the Ontario government introduced the Transportation Demand Management (TDM) grant program, which "provides financial assistance to Ontario municipalities for the development and implementation of TDM plans, programs, and services that promote alternatives to driving alone such as cycling, walking, transit, or carpooling."[14] This program is in its infancy, and works with a total budget of $250,000. To date, it has provided 35 municipalities with assistance for various transit and active transportation projects, a few of which have been cycling-oriented.

For example, the Town of Ajax received $10,695 of the $22,310 cost for its Bike This Way project, the City of Oshawa introduced the Pedestrian and Cycling Routes project and has been awarded a grant for $15,500, and the City of Windsor received $5,000 for its Wayfinding Signage for Cycling Facilities project, which the City will match.

These provincial seed-money contributions are dwarfed by the budgetary contributions of other provinces. Quebec has dedicated $88.5 million since 1995 to help fund its Route Verte bicycle routes in collaboration with Velo Quebec and various regional partners, and BikeBC has a budget of $30 million.

Certain municipalities have taken the initiative to encourage cycling and build infrastructure. For example, the City of Ottawa has taken measures to increase bicycle safety and already has more than 540 km of bike lanes and paths.[15] Ottawa's official 20-year plan is to have over 2,500 km of lanes and paths, and cyclist fatalities in the summer of 2010 prompted a cyclist survey to see which streets need the most urgent attention.[16] Smaller cities, like Barrie and Thunder Bay, are developing networks of paved trails, unpaved trails, bike lanes on city streets, and safe bike parking areas.[17,18]

As of October 2010, the City of Toronto has created nearly 430 km of bike paths and lanes stretching through parks, rail corridors, the lakeshore, and increasingly in the downtown and nearby neighbourhoods. Toronto still has a long way to go to reach the goal of its 2001 Official Bike Plan, which set out to have 1,004 km of bike paths and lanes by 2011.[19] While some municipalities are taking significant steps toward creating a safer environment for cyclists and encouraging active transportation, the number of bike paths in Ontario pales in comparison to Route Verte, with 4,377 km of bike paths and lanes.[20]

Ontario's small funding initiative is focused on providing seed money for projects that promote alternatives to car travel, but they are not specific to cycling and have a number of drawbacks. First, the funding allotments are small, and no funds have been allotted to date for large projects like the construction of paved bike paths or separated lanes. Second, the funding is organized such that there is no inter-municipal coherence to projects such as there is in Quebec.

The TDM program leaves the prioritization and planning of cycling infrastructure (and other local transportation projects in general) to municipalities, instead of putting the provincial government in the lead in creating an integrated cycling plan. Given that there is no overarching provincial plan to promote active commuting and to fund bike lanes and paths, the progress in developing cycling infrastructure in Ontario may continue to be disjointed and slow.

Improving cycling infrastructure, i.e., creating safe, connected routes with dedicated cycle lanes, is essential to reducing injury and also reducing the barrier that safety concerns play in dissuading people who might otherwise consider bicycle trips. Ontario needs a comprehensive policy that supports municipalities in building a safer infrastructure for cycling.

The OMA recommends that the provincial government develop policy and programs, including funding, to facilitate cycling infrastructure. Municipal governments have the responsibility to build a significant portion of the much-needed cycling infrastructure, and it is the OMA's hope that they will redouble their efforts. Improved infrastructure will make cycling a safer activity.

Driver and cyclist education

Oregon is considered the most bicycle-friendly state, and has reported a very significant modal shift to cycling for utilitarian trips.[21] The state has revised its Driver's Manual to include a section called Sharing the Road, which outlines the laws and etiquette surrounding driving on roads used by cyclists.[22]

With respect to education and awareness, the Ontario Drivers' Manual includes very little information about bicycles on the road.[23] The current manual provides information about the turning hand-signals cyclists use, and that drivers should be aware that cyclists may be on the road if there is a sign that indicates a bike lane (images of signs are shown). However, the manual does not include any information about intersection rules, lane sharing, and road-use etiquette for cars and bikes together. It does not outline for drivers that bikes are obliged to behave like cars, and that the same rules apply to cyclists as to drivers.

The manual does not include images of bike lanes or sharrows (shared lane markings) in the section that shows pictures of lanes in streets and explains how to change lanes. Given that there are a variety of ways that bike lanes can be marked, adding images of what these look like for a new driver will assist them to learn how to operate their vehicle where these lanes are present. There is also no section in the manual that explains how to safely cross a bike lane when a driver wants to turn at a street or parallel park.

Further, the manual does not provide information about bike boxes or bike traffic lights, or what drivers should do when these are incorporated into an intersection. There is no explanation for how to determine who has the right of way in certain circumstances — for example, when a cyclist who is travelling straight ahead, and a driver who is turning right, are stopped beside each other at an intersection, who goes first?

Finally, the manual does not indicate to drivers that bikes might change lanes, or how they would change lanes, or that cyclists are expected to use the left-hand turning lane, when there is one, to make a left-hand turn.

According to ORSAR, the blame for bicycle-car collisions in Ontario, in terms of who is following the proper rules of the road and

safety precautions, is split fairly evenly between cyclists and drivers.

It is clear that cyclists must become better informed about the rules of the road with respect to motorized vehicles, and drivers must become better informed with respect to the rights of cyclists.

As a first step, *the OMA recommends that the Ontario Drivers' Manual include a comprehensive section on vehicle-bicycle interaction, and furthermore that Ontario's Drive Test also include this important information in the examination of new drivers.* As most adult cyclists are also licensed drivers, this education would serve a dual role of educating cyclists too.

The OMA also recognizes the importance of the ongoing delivery of bicycle safety education for young children, through such programs as Can-Bike, but believes that bicycle safety training is so important that it should be mandatory for all Ontario primary school students.

Conclusion and recommendations

Creating a safe environment for cyclists of all ages is an important step toward a healthier population. Ontario needs to take steps to address bicycling safety in a comprehensive manner. There is a clear need for the provincial government to take the lead in the creation and maintenance of a safe environment for cyclists in both urban and rural settings. It is the legal right of cyclists to use the roads along with drivers, and it is of the utmost importance that they be able to do so safely and without fear.

Besides preventing many deaths and injuries each year through infrastructure investment and education, the province has a great opportunity to improve population health by facilitating the exercise that cycling provides.

The problem of inactive and unfit children and adults is well-known and has garnered a lot of media and scientific attention of late. Our aging population often faces a limited set of opportunities for physical activity, and cycling is an excellent way for older people to get outside, stay active, and to maintain mobility within their communities. Encouraging active transportation is one very easy and effective way for Ontario to address these health issues.

Cycling is an important form of exercise and the OMA hopes to encourage this beneficial activity by recommending a number of actions to improve safety. Creating a safe environment for cyclists is a crucial part of creating a healthier population. Toward this goal, the OMA recommends the following:

- That both provincial and municipal transportation departments do more to make cycling safer.
- That the provincial government develop policy and programs, including funding, to facilitate safe cycling routes.
- That municipal governments, which have the responsibility to build a significant portion of the much-needed cycling infrastructure, redouble their efforts to do so.
- That bike lane and bike path networks should be safe and seamless enough for parents to feel comfortable permitting their children to ride on them.
- That bike lane networks be connected so that cyclists aren't left stranded in mixed traffic.
- That transportation planners in Ontario be charged with implementing solutions that have been proven in other jurisdictions, and work to solve additional challenges that intersections pose for cyclists and drivers sharing the road.
- That investments in cycling infrastructure be made in suburban settings as well.
- That connected networks of roads with paved shoulders are needed in rural settings, to allow for the much needed separation between cyclists and fast-travelling vehicles on rural roads.
- That the Ontario Drivers' Manual be revised to include a comprehensive section on vehicle-bicycle interaction, and furthermore that the Ontario's Drive Test include this in the examination of new drivers.
- That the ongoing delivery of bicycle safety education for young children through such programs as Can-Bike be supported, and that such training be mandatory for all Ontario primary school students.
- That education material for both drivers and cyclists emphasize intersection-specific dangers.
- That the use of bicycle helmets is strongly recommended, on and off road, for children and adults alike. □

Appendix:

Health Benefits of Cycling

The health benefits of cycling have been clearly demonstrated and documented.[24-27] Two-thirds of Canadians are inactive and 24% are obese.[28] These are serious health threats that put individuals at increased risk of chronic disease and pose a significant burden on the health-care system.

The Canadian Society for Exercise Physiology recently updated the Health Canada physical activity guidelines. These guidelines recommend that to achieve health benefits, everyone 18 years of age and older should accumulate at least 150 minutes of moderate-intensity to vigorous-intensity aerobic physical activity per week, in bouts of 10 minutes or more.[29]

This is considered to be a minimum activity threshold for health, and to help prevent chronic illness, with more activity considered to be better for health outcomes.

The exercise guidelines of the American Heart Association are similar, and along with The American College of Sports Medicine (ACSM), they recommend that to lose weight or maintain weight loss, 60 to 90 minutes of moderate exercise five days a week, or from five hours to seven-and-a-half hours per week, is required. Bicycling can offer this moderately intense workout.

Cycling also provides the opportunity for exercise during non-recreational, utility trips to work, to shop, for food and for entertainment. Cycling is both a viable mode of transportation as well as a recreational opportunity, especially in urban centres where approximately 85% of Ontarians live.

For the many people who think that they are too busy to designate time for exercise, or don't want to go to a gym, active

commuting can provide the recommended amount of weekly exercise. Only a few Ontarians live close enough to walk to work, but many more live within cycling distance and could achieve the recommended weekly exercise by bicycling, at least for the spring, summer and fall.

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