



Status Summary 2023: Road Safety Risk Factors

Bloomberg Philanthropies Initiative for Global Road Safety

QUITO, ECUADOR



Beginning in 2021, the Johns Hopkins International Injury Research Unit, through the Bloomberg Philanthropies Initiative for Global Road Safety, has been conducting observations in Quito to reduce road injuries and fatalities.

The following report highlights results from an ongoing study that captured observations of three risk factors:* speed, helmet use, and seat-belt and child restraint use. The results are based on data collected between November 2021 and April 2023.

*This study did not observe drink driving due to COVID-19 risks.

Speeding among observed vehicles was



Correct helmet use among passengers was



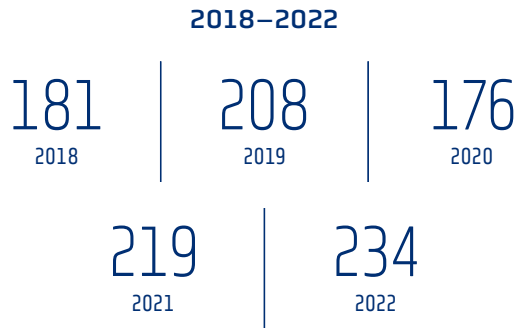
Seat-belt use among adult rear-seat passengers was very low



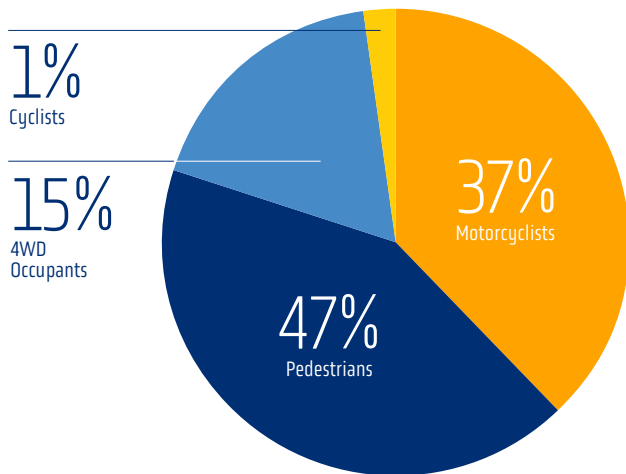
Age-appropriate child restraint use was almost nonexistent among children 5-11 years old



Road Traffic Fatalities in Quito



Deaths by road user, 2022



Vulnerable road users (motorcyclists, pedestrians, and cyclists) **accounted for 85% of road traffic fatalities.**

Note: Data from existing sources was used for the outcome data indicators. Police crash data systems are prone to underreporting.

Recommendations

Transit Civil Agents

- Increase enforcement of:
 - Speed limits, particularly among motorcycles and on arterial roads.
 - Correct helmet use, focusing on passengers.
 - Seat-belt use, particularly among rear-seat passengers.
 - Age-appropriate child restraint use.

Secretary of Mobility

- Implement a maximum speed limit of 30 km/h on roadways where motorized traffic mixes with pedestrians and cyclists, and 50 km/h in urban areas.
- Work with local and state infrastructure and enforcement agencies to focus their efforts in areas with the most fatalities and serious injuries.
- Implement mass-media campaigns in coordination with enhanced enforcement efforts, focusing on:
 - The dangers of speeding.
 - Correct helmet use.
 - Seat-belt and child restraint use.
- Advocate for legislation to increase the use of age-appropriate child restraints.

Speed in Quito

Higher speeds lead to a greater risk of a crash and a higher probability of serious injury. An increase of 1 km/h in average vehicle speed results in an increase of 3% in the incidence of crashes resulting in injury and an increase of 4%–5% in the incidence of fatal crashes.*

*Save Lives: A road safety technical package. Geneva: World Health Organization; 2017.



20% of all observed vehicles were speeding.



Almost a third of all motorcycles observed were speeding (30%).



Observed speeding was twice as high on arterial roads (28%) compared with expressways (15%).



16% of all observed buses were speeding.



Applying the global recommendation (30 km/h for local and collector roads and 50 km/h for arterial roads), 55% of the observed vehicles were speeding in April 2023.

Functional classification of roads

Arterial road: These are roadways with high traffic volume; they provide a high degree of mobility and carry a high proportion of travel for long distance trips. These roadways carry the major portion of trips entering and leaving an activity center, as well as the majority of movements that either go directly through or bypass the area.

Local road: These roads provide limited mobility and are the primary access to residential areas, businesses, farms, and other local areas.

Collector road: These roads collect traffic from local roads and connect to arterial roadways. They penetrate neighborhoods and communities, collecting and distributing traffic between neighborhoods and arterial roads. Collector roads are shorter than arterial but longer than local roads.

These roads provide less mobility than arterials at lower speeds and for shorter distances.

Expressways: These are six- to eight-lane controlled access highways with modern features, such as access ramps, grade separation, lane dividers, and elevated sections.

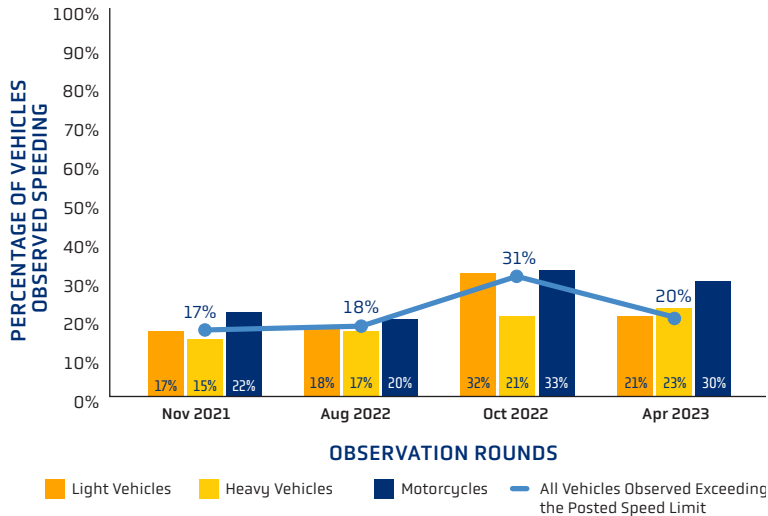
Vehicle types

Light vehicle: Sedans, saloons, SUVs, 4WDs, minibuses, minivans, pickup trucks, light trucks, and three-wheelers.

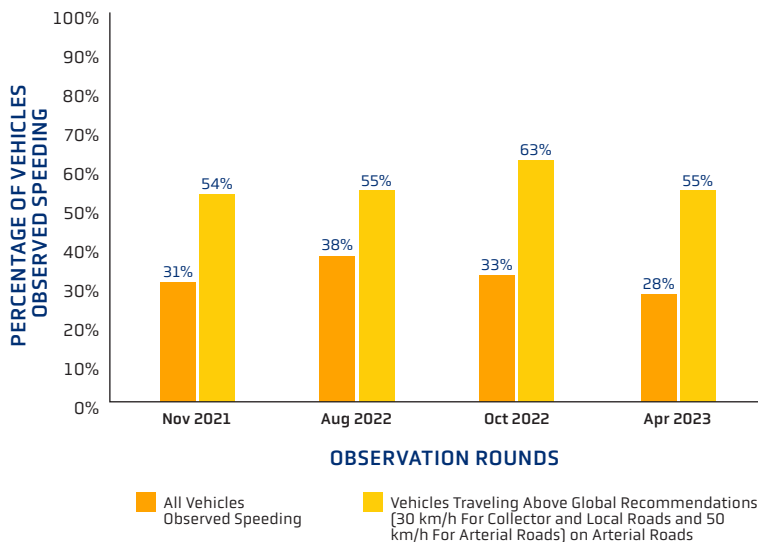
Heavy vehicle: Buses, trucks, and large trucks.

Key Findings on Speed in Quito

Speeding was most common among motorcycles



More than half of vehicles on arterial roads were observed traveling at unsafe speeds



Recommendations

Transit Civil Agents

- Increase enforcement of speed limits, focusing on:
 - Motorcycles and heavy vehicles including buses.
 - Arterial roads.
 - Areas with the highest frequency of fatalities and serious injuries, especially Avenida Simón Bolívar.

Secretary of Mobility

- Implement mass-media campaigns in coordination with enhanced enforcement efforts, emphasizing the dangers of driving at unsafe speeds [exceeding 30 km/h on roadways where motorized traffic mixes with pedestrians and cyclists, and 50 km/h in urban areas].
- Implement a maximum speed limit of 30 km/h on roadways where motorized traffic mixes with pedestrians and cyclists, and 50 km/h in urban areas.
- Work with bus companies to limit their vehicles' speeds below 50 km/h at all times.
- Implement speed-calming measures, such as bumps, rumble strips, safe speed signage, and designation of low-speed areas.

Helmet Use* in Quito

Using a motorcycle helmet correctly** can reduce the risk of fatality by 42% and the risk of serious head injury by 69% in the case of a crash.

*Overall helmet use was defined as strapped or unstrapped use of a helmet of any type.

**Correct helmet use was defined as the use of a standard helmet that was worn correctly and with the chin strap fastened.



Correct helmet use was lower among passengers (87%) compared with drivers (91%).



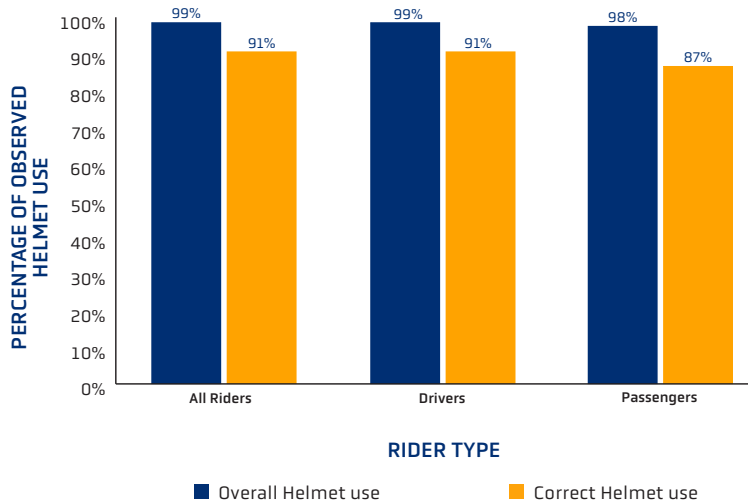
Correct helmet use was lower among male passengers (81%) compared with female passengers (89%).



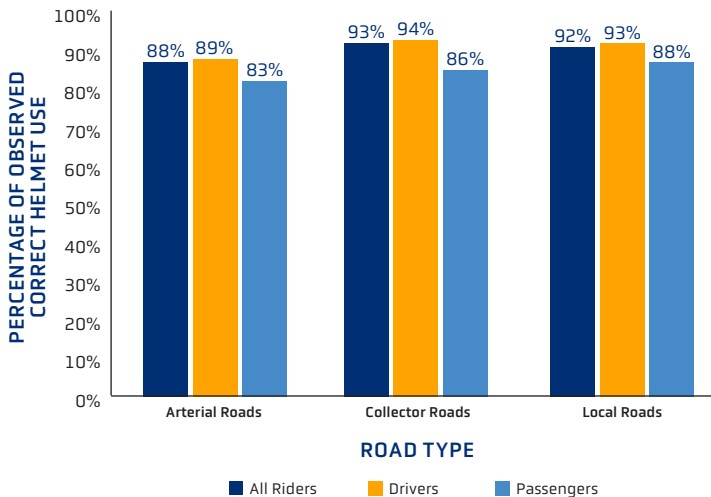
Correct helmet use was lower on arterial roads (88%) compared with collector roads (93%) and local roads (92%).

Key Findings on Helmet Use in Quito

Correct helmet use was lower among passengers



Correct helmet use was lower on arterial roads



Recommendations

Transit Civil Agents

- Continue enforcement of correct helmet use, particularly among passengers and on arterial roads.

Secretary of Mobility

- Implement mass-media campaigns in coordination with enforcement efforts, focusing on correct helmet use.
- Promote enforcement of penalties and fines for driving without using a helmet correctly.
- Advocate at the national level for effective legislation on correct helmet use.

Seat-Belt and Child Restraint Use in Quito

Seat-belts and child restraints play a significant role in reducing the severity of injuries in the event of a crash; they reduce mortality by 50% in crashes in which motorists, passengers (including rear-seat passengers), and children would otherwise die. Children in front seats have a 40% higher road traffic injury risk than children in rear seats.



Seat-belt use among occupants ≥ 12 years old was 84%.



Less than a fifth of adult rear-seat passengers were observed using seat-belts (14%).



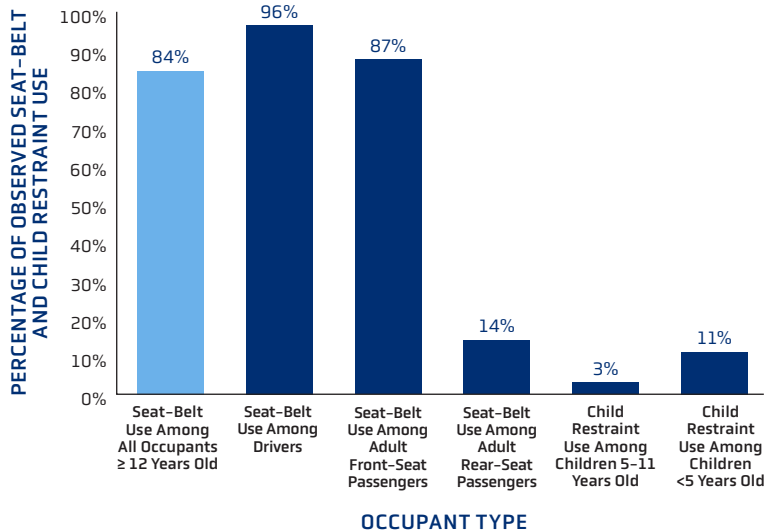
Seat-belt use was especially low among adult rear-seat passengers in commercial vehicles (8%) and taxis (13%).



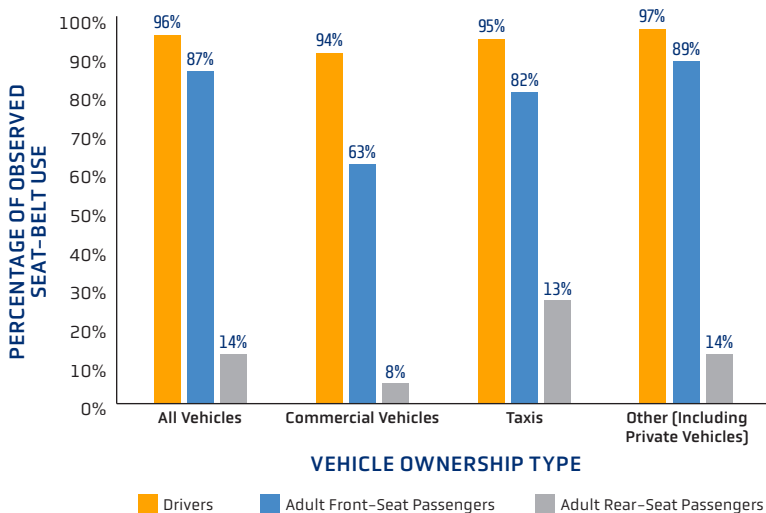
Age-appropriate child restraint use was almost nonexistent among children 5-11 years old (3%), and very low among children < 5 years old (11%).

Key Findings on Seat-Belt and Child Restraint Use in Quito

Seat-belt use among adult rear-seat passengers and child restraint use among children 5–11 years old was very low



Seat-belt use was lower among passengers in commercial vehicles



Recommendations

Transit Civil Agents

- Increase enforcement of:
 - Seat-belt use among adult rear-seat passengers
 - Seat-belt use among passengers in commercial vehicles.
 - Age-appropriate child restraint use.

Secretary of Mobility

- Implement mass-media campaigns in coordination with enforcement efforts, emphasizing the importance of seat-belt use among rear-seat passengers and age-appropriate child restraints.
- Advocate for legislation to increase the use of age-appropriate child restraints.
- Strengthen the enforcement of unpaid fines and penalties.
- Engage commercial companies to promote the use of seat-belts, particularly among rear-seat passengers.



Urdaneta street in San Bartolo was converted to a safe space for pedestrians, students, and residents in Quito, Ecuador.

METHODS

Since 2021, The Johns Hopkins International Injury Research Unit has partnered with the Universidad Tecnológica Equinoccial to conduct roadside observations. The methods for these findings were developed by the Johns Hopkins International Injury Research Unit and implemented in collaboration with the Universidad Tecnológica Equinoccial. This report provides results from observational surveys that represent population-level (citywide) prevalence of important road safety risk factors—speed, helmet use, and seat-belt and child restraint use—at baseline, followed by additional speed observations to show changes over time. In the last round of observations, for speed, there were 37,455 observations (April 2023); for helmet use, there were 28,001 observations (November 2021); and for seat-belt and child restraint use, there were 59,632 observations (November 2021).

Observation sites were randomly selected, conditional on the safety of observers. Fifteen sites were randomly selected to capture the prevalence of risk factors that could be attributed to either implementation of targeted interventions or secular trends. For each risk factor, a standardized protocol for data collection was implemented. All risk factors were observed by selecting vehicles in

a systematic quasi-random fixed sequence during a period of three weeks in 15 observation sites of the city. The selection of the observation sites was done proportionally to traffic flow, weighted by the density of traffic lights in each administrative region. Observations were performed between 7:00 a.m. and 7:00 p.m. on both weekdays and weekend days. The methods were designed to estimate citywide prevalence and cannot provide insights into interventions conducted in specific locations in the city. The data management team at Johns Hopkins International Injury Research Unit reviewed and cleaned the data to produce the analyses available in this report.

ACKNOWLEDGMENTS

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