



Status Summary 2023: Road Safety Risk Factors

Bloomberg Philanthropies Initiative for Global Road Safety

CALI, COLOMBIA



JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

International
Injury Research Unit

Beginning in 2021, the Johns Hopkins International Injury Research Unit, through the Bloomberg Philanthropies Initiative for Global Road Safety, has been conducting observations in Cali 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 June 2021 and March 2023.

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

**Almost half of all vehicles
were observed speeding**



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



**Speeding was high
among motorcycles**



**Correct helmet use among
drivers was**



Road Traffic Fatalities in Cali

2019–2022

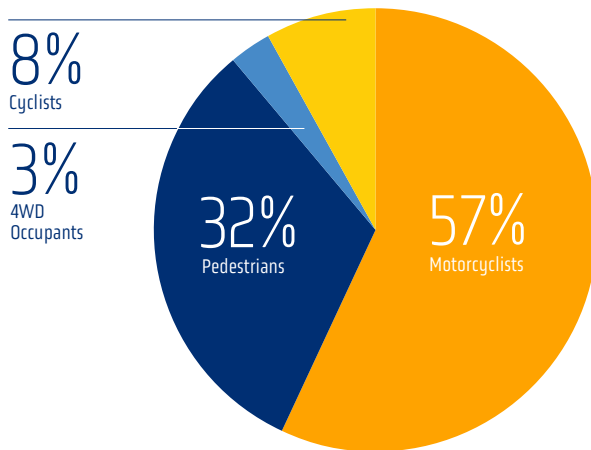
309
2019

300
2020

294
2021

328
2022

Deaths by road user, 2022



Vulnerable road users (motorcyclists, pedestrians, and cyclists) **accounted for 97% 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 Agents

- Increase enforcement of:
 - Speed limits, especially among motorcyclists and on low-speed roads.
 - Speed limits in areas with more vulnerable road users and with the most fatalities and serious injuries.
 - Correct helmet use among all occupants, especially among motorcycles with more than one rider.
 - Seat-belt use, particularly among rear-seat passengers and passengers in taxis.
- Use context-specific touchpoints with road users to communicate key messages about risk factors.

Secretariat of Mobility of the Mayor's Office in Cali

- Implement forceful mass-media campaigns to encourage slower driving in coordination with enforcement efforts.
- Perform evaluations to assess effectiveness of enforcement activities and mass-media campaigns.
- Advocate for enhanced safety laws to increase seat-belt use, child restraint use, and correct helmet use in line with global best practices.
- Strengthen speed limit enforcement in the city through the use of speed cameras in roadways with the most fatalities and serious injuries.

Speed in Cali

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.



Applying the global recommendation of 30 km/h for local and collector roads and 50 km/h for arterial roads, **48% of the observed vehicles were traveling at unsafe speeds** in March 2023.



Speeding was high among motorcycles (53%).



Speeding was higher on local roads (84%) compared with collector roads (63%) and arterial roads (25%).



Three-fourths of all vehicles were observed speeding on roads with a 30 km/h speed limit between June 2021 (74%) and March 2023 (73%).



Nearly half of all buses (47%) and taxis (46%) were observed speeding.

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.

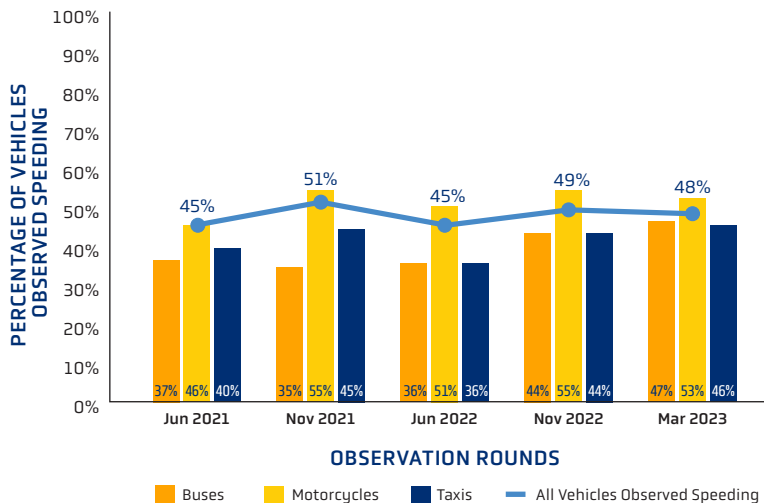
Local road: These roads provide limited mobility and are the primary access to residential areas, businesses, farms, and other local areas.

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.

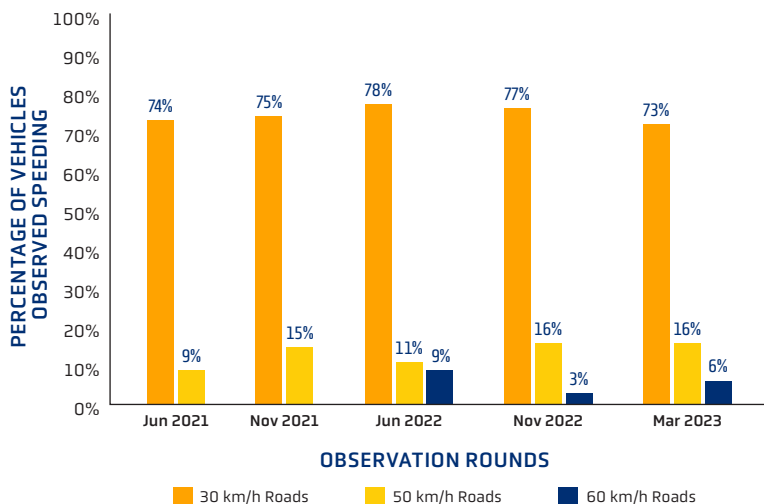
These roads provide less mobility than arterials at lower speeds and for shorter distances.

Key Findings on Speed in Cali

On average, close to half of all observed motorcycles, buses, and taxis were speeding



Speeding was more common on low-speed roads with a speed limit of 30 km/h



Recommendations

Transit Agents

- Increase enforcement of speed limits, particularly among motorcycles and on low-speed roads.
- Expand enforcement activities, especially on local roads.

Secretariat of Mobility of the Mayor's Office in Cali

- 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).
- Increase electronic enforcement in areas with more vulnerable road users and the most fatalities and serious injuries.
- Implement speed-calming measures, such as bumps, rumble strips, safe speed signage, and designation of low-speed 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 and taxi companies to limit their vehicles' speeds below 50 km/h in all public transportation.

Helmet Use* in Cali

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 observed among 84% of all riders.



Correct helmet use was higher among passengers (86%) compared with drivers (83%).



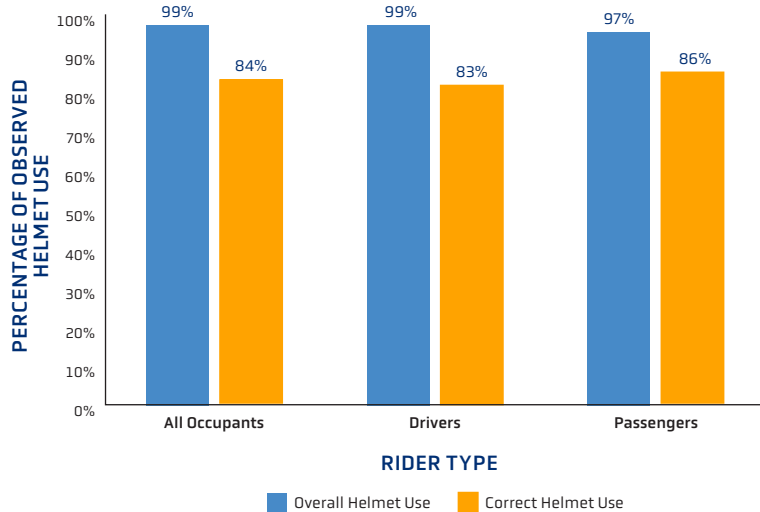
Correct helmet use was similar on arterial roads (84%), local roads (84%), and collector roads (83%).



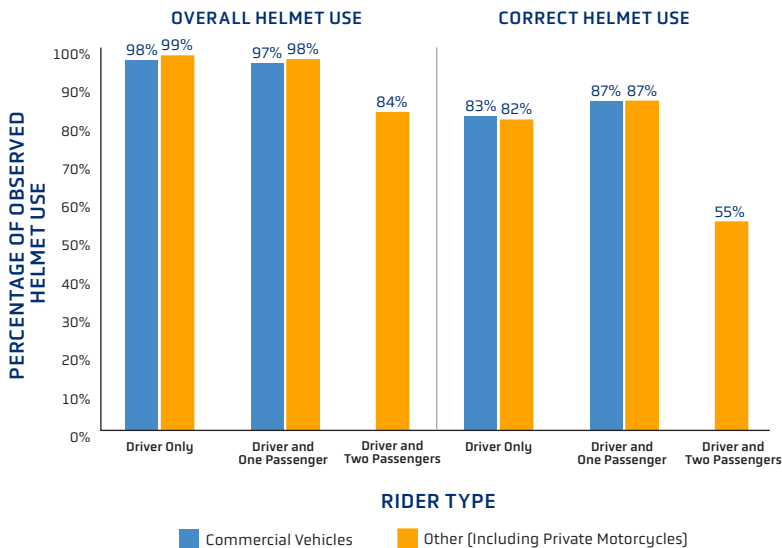
Correct helmet use was low among private motorcycles with one driver and two or more passengers (55%).

Key Findings on Helmet Use in Cali

Correct helmet use was lower among drivers than passengers



Correct helmet use was low among riders of private and government motorcycles with three riders



Recommendations

Transit Agents

- Enhance enforcement of correct helmet use, especially among vehicles with more than two riders.
- Enforcement operations should be regular, visible, and widespread.

Secretariat of Mobility of the Mayor's Office in Cali

- Develop mass media campaigns, in coordination with correct helmet use enforcement, focusing on vehicles with more than two riders.
- Advocate for enforcement of penalties and fines for driving without wearing a helmet correctly.
- Advocate for enhanced safety laws to increase correct helmet use in line with global best practices.

Seat-Belt and Child Restraint Use in Cali

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 was lower among adult passengers (53%) compared with drivers (85%).



Seat-belt use among rear-seat passengers was very low (16%) particularly among those in taxis (8%).



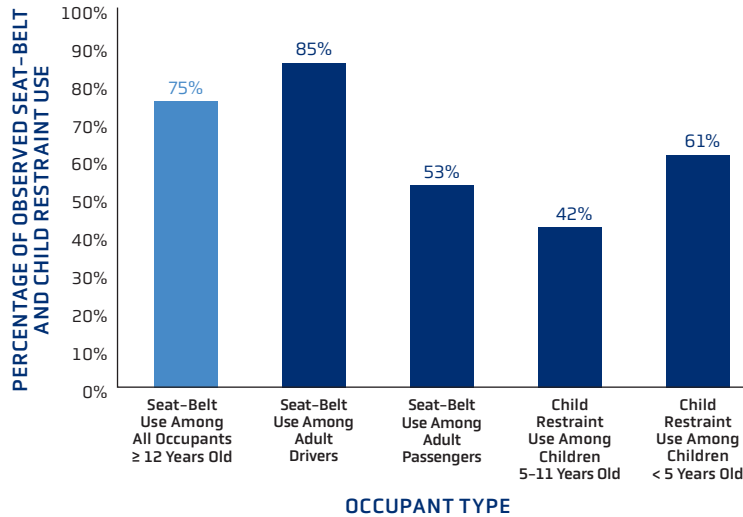
Age-appropriate child restraint use was very low among children < 5 years old (42%) and low among children 5-11 years old (61%).



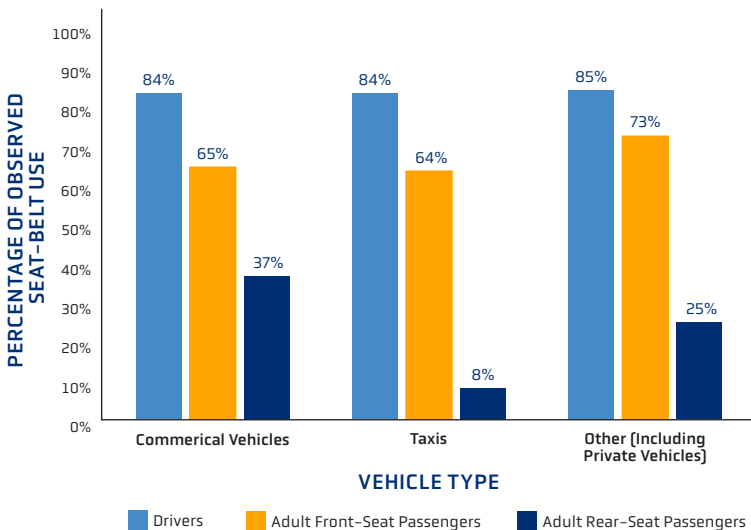
Seat-belt use was lower on weekends (72%) compared with weekdays (77%).

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

Only 26% of adult rear-seat passengers used seat-belts; child restraint use among children 5-11 years old was very low



Seat-belt use was very low among rear-seat passengers, especially those in taxis



Recommendations

Transit Agents

- Increase enforcement of seat-belt use, particularly among rear-seat passengers and passengers in taxis.
- Make enforcement operations regular, visible, and widespread.
- Strengthen the enforcement of unpaid fines and penalties.

Secretariat of Mobility of the Mayor's Office in Cali

- 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.



Pedestrians crossing
in Cali's city center in
Cali, Colombia..

METHODS

Since 2021, the Johns Hopkins International Injury Research Unit has partnered with the Universidad de los Andes 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 de los Andes. This report provides results from observational surveys that represent the 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 140,997 observations (March 2023); for helmet use, there were 51,082 (June 2021) observations; and for seat-belt and child restraint use, there were 50,557 observations (June 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 7:30 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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