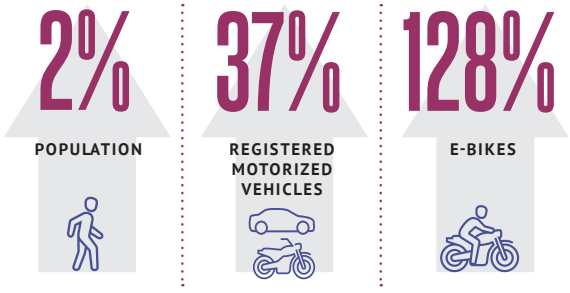
Risky Road Behaviors in Shanghai

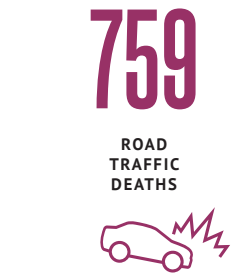
Burden of Road Traffic Injuries

Road traffic injuries are one of the leading causes of death in China, partly as a result of rapid increases in motorization. As of March 2017, it was estimated that there were 250 million two-wheeled bikes in China. The increase in the number of electric bicycles raises the potential for associated road safety problems. In Shanghai, China's second largest city, two to three people die every day on the roads.

Shanghai's Growth, 2012–2016



Impact of Road Crashes, 2016



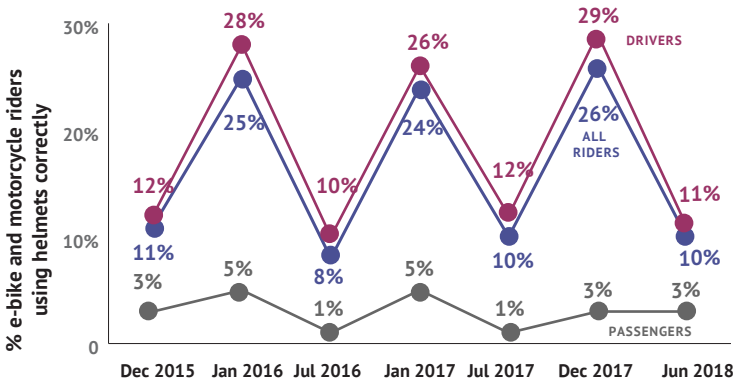
Road crashes are largely preventable. Globally, four risk behaviors contribute the most to serious road injuries and deaths: speeding, drink driving, not using seat-belts or child restraints, and not using motorcycle helmets correctly.

In 2015, the city of Shanghai joined the Bloomberg Philanthropies Initiative for Global Road Safety, which aims to reduce road injuries and deaths. As part of this initiative, the Johns Hopkins International Injury Research Unit, in collaboration with the Shanghai Municipal Center for Disease Control and Prevention, assesses key road user behaviors twice a year. This report primarily highlights results based on the latest round of road user behavior surveys (June 2018) and, where noted, compares the results to six previous survey rounds. Recommended actions are also presented.

KEY MESSAGES

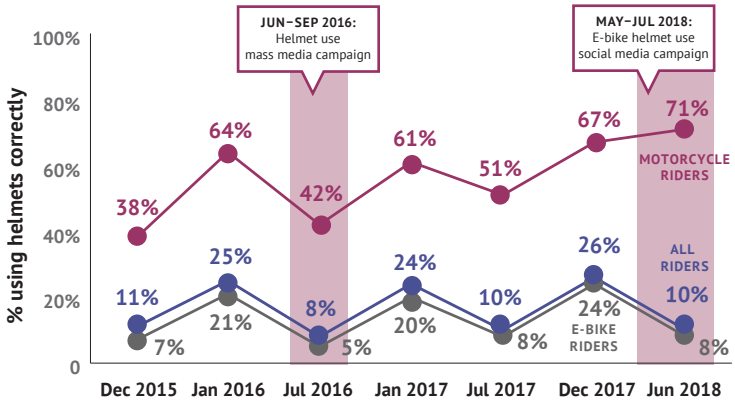
- E-bikes are far more numerous than motorcycles in Shanghai, and are of increasing safety concern, especially regarding riders' lack of helmet use.
- Correct helmet use was much lower for e-bike users than motorcyclists.
- Helmet wearing among both e-bike riders and motorcyclists varied by season, increasing in the winter and decreasing in the summer.
- Seat-belt use has been increasing and was fairly high among drivers and front seat passengers in the most recent round; however, seat-belts were rarely used by rear seat passengers.
- Child restraint use was very low for children under the age of 12; general promotion of child restraint should be considered.

Correct helmet use was low throughout the year, particularly in warm-weather months



- Helmet use was higher in the cold months (26%) and lower in the warm months (10%).
- Correct helmet use among motorcycle and e-bike passengers (3%) was even lower than among drivers (11%).

Proper helmet use by motorcycle riders increased, but remained low among e-bike riders



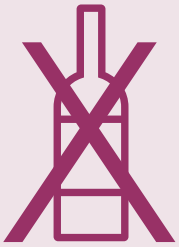
- Correct helmet use by e-bike riders (8%) was more than eight times lower than correct helmet use among motorcycle riders (71%).
- Male drivers were more likely to wear helmets (7%) than male passengers (2%), female drivers (3%) and passengers (3%).

CONTEXT

- Using a motorcycle helmet correctly can reduce the risk of death by 42% and the risk of head injury by 69% in case of a crash. This level of protection is the same for both drivers and passengers.
- E-bikes often drive faster than manufacturers' specifications and can reach speeds up to 45 km/h, but China has no helmet law for this large and growing group of road users.
- Shanghai passed regulations in 2014 requiring e-bike registration, but the current regulations do not require helmet use.
- A proven way to increase correct helmet use is to combine enforcement with hard-hitting mass media campaigns.

Drink driving rates remained low in Shanghai

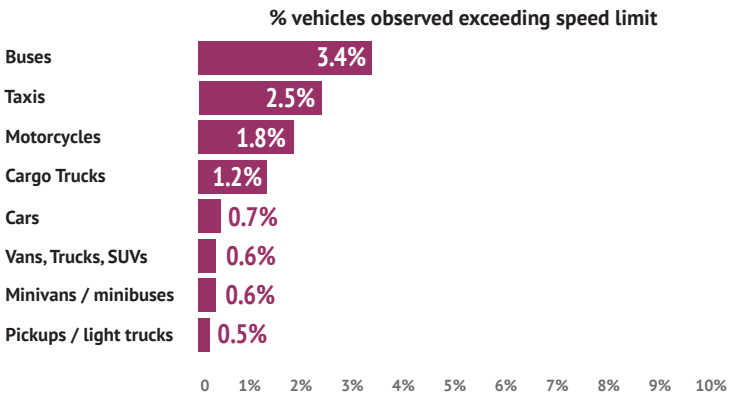
Less than 1% of drivers tested above the alcohol limit throughout the period



0.5% (2015)

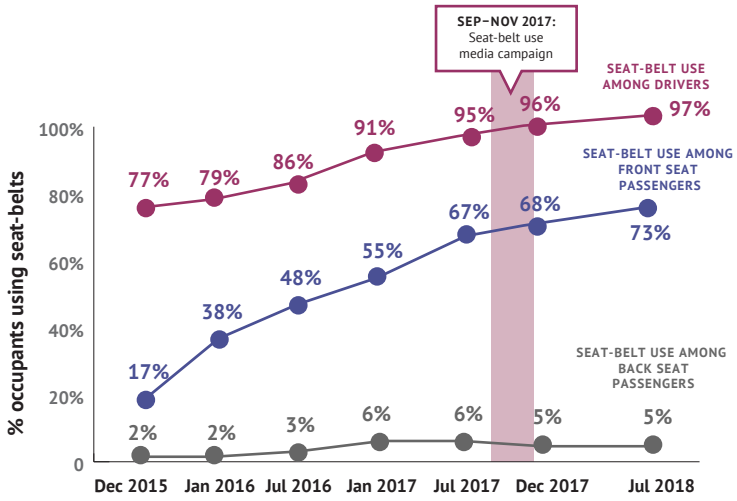
0.1% (2018)

Buses and taxis were more likely to speed than other vehicles



- Speeding in Shanghai was low: 1% of vehicles exceeded the posted speed limit and this rate has remained below 3% throughout all observation periods.
- Buses and taxis were more likely to speed than other vehicle types.
- The extensive use of speed cameras throughout the city, strong enforcement and high levels of congestion may account for the low rates of speeding.
- Although the speeding rate was low overall, there may be specific areas of the city where speed remains a problem, particularly in areas without speed cameras.

Seat-belt use among drivers and front seat passengers continued to increase



- Seat-belt use among drivers (97%) and front seat passengers (73%) was high and has increased consistently, but rear seat passengers rarely wore seat-belts (5%).
- Seat-belt use among all vehicle occupants increased from 61% to 86% between December 2015 and June 2018.
- A mass media campaign promoting seat-belt use was conducted from September to November in 2017.

CONTEXT

- Wearing a seat-belt reduces the risk of death in case of a crash by 50% for front seat occupants and by 75% for rear seat passengers.
- Child restraints reduce the risk of death in a crash by 70% in infants and by 54% to 80% in young children.
- China currently has no national child restraint regulation. Shanghai has a regulation for child restraint use in children under age 4, but it does not specify penalties for violators.
- Since early 2016, police have used new computer vision techniques to assist with seat-belt enforcement. This may be contributing to increasing seat-belt use.

Very few children were protected by child restraints

- Appropriate child restraint use was very low and did not change between December 2017 and June 2018. Only 8% of children under 12 were protected by child restraints.
- Child restraint use among children under 5 increased significantly, from 9% to 11%, between December 2017 and June 2018, but was still unacceptably low.

8%
of children under 12 were appropriately restrained

11%
of children under 5 were appropriately restrained

Implications for action in Shanghai

FOR POLICE

- Continue to conduct routine enforcement of correct helmet use among motorcyclists.
- Conduct targeted enforcement campaigns for helmet use, especially in warmer months; combine with media campaigns for greater impact.
- Continue to expand use of computer vision for seat-belt enforcement.

FOR LOCAL GOVERNMENT

- Enact regulations requiring helmets for e-bikes.
- Strengthen child restraint regulations to meet WHO standards, that is, including an age, weight or height restriction on children in front seats, and appropriate restraints for children ages 4 to 11.
- Continue to conduct mass media campaigns on seat-belt use, and consider addressing child restraint use as well.
- Develop mass media campaigns promoting correct motorcycle/e-bike helmet use; target messages particularly to women and to passengers.
- Continue to coordinate media campaigns with police enforcement.

FOR RESIDENTS

- Motorcyclists and e-bike riders: wear helmets correctly every trip, including in the warmer summer months.
- Wear a seat-belt whenever traveling by car, including when you are a passenger in the front or rear seat.
- Protect your children with appropriate child restraints.

Methods

See "Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS) 2015-2019 Data Technical Report, Round 7, September 2018" for full details. The methods for these findings were developed by the Johns Hopkins International Injury Research Unit (JH-IIRU) and implemented in collaboration with the Shanghai Municipal Center for Disease Control and Prevention. This report provides results from observational surveys that represent population-level (citywide) prevalence of the four main road safety risk factors (speed, drink driving, helmet use, seat-belt and child restraint use), and shows changes over time. Observations were conducted twice yearly starting in 2015 with seven rounds completed to date. For drink driving there were approximately 600-2,000 observations per round; for helmet use 7,300-16,800 observations per round; speeding 21,000-109,600 observations per round; seat-belt use 9,400-23,700 per round, and child restraint use 900-3,000 observations per round. All percentages presented in this report have been rounded to the nearest ones unit.

Observation sites were randomly selected except for drink driving, conditional on the safety of observers. There were six to eight observation sites per risk factor. Measurements correspond to population-level measurements and cannot provide insights into interventions conducted in specific locations in the city. In general, these surveys are not designed to determine the causes of changes in behaviors. Observations were performed between 8:00 p.m. and 2:30 a.m. for drink driving (as well as earlier times of the day for rounds 1 through 3) and between 7:30 a.m. and 8:30 p.m. for the other risk factors; both weekdays and weekend days were included. Drink driving observation sites were determined in collaboration with local traffic agents.

Johns Hopkins International Injury Research Unit
World Health Organization Collaborating Center for Injuries, Violence and Accident Prevention
Vital Strategies
Bloomberg Philanthropies
INITIATIVE FOR GLOBAL ROAD SAFETY