

# EVIDENCE-BASED INTERVENTION TALKING POINTS

## MOTORCYCLE HELMET LAW, ENFORCEMENT, AND PROMOTION



### What we mean by it<sup>1</sup>

A law mandating the correct use of helmets by motorcycle drivers and passengers of all ages while riding motorcycles. The law must also require the helmets to meet the safety standard (national or international), i.e., demonstrated to be effective in reducing head injuries for motorcycle riders. The law must be combined with enforcement that applies penalties for non-compliance and promotion that warns people about the law, enforcement, and penalties.

### Where we need it

Countries that allow motorcycles on public roads.

### Key asks

- Pass and implement a comprehensive helmet law that mandates the correct use of standard helmets by all motorcycle drivers and passengers, irrespective of age and gender on all public roads in both rural and urban settings, with no exemptions;
- Conduct sustained and uncorrupt enforcement of the comprehensive helmet law with penalties for non-compliance and promotion warning people of the law, enforcement, and penalties;
- Implement all three components—a comprehensive law, enforcement, and promotion together—any one by itself cannot work without the other two;
- Ensure a ready supply of helmets which have been demonstrated to be effective in reducing head injuries and are affordable for all motorcycle riders.

---

<sup>1</sup> Our definition is based on the following sources:

Turner, B., Job, S., & Mitra, S. (2021). *Guide for Road Safety Interventions: Evidence of What Works and What Does Not Work*. World Bank, Washington, DC., USA.  
World Health Organization, (2006). *Helmets: a road safety manual for decision-makers and practitioners*. Geneva.

## Why we need it

### Linkage to key global road safety documents

The extensive linkage between motorcycle law, combined with promotion, and enforcement and the recommendations set out in existing key global road safety documents give more weight as to why this intervention ought to be implemented. Governments are able to demonstrate that they are putting recommended best practice into real practice when they implement motorcycle law, combined with promotion, and enforcement.

Implementing motorcycle helmet law, enforcement, and promotion achieves, supports, and/or promotes the implementation of:

- 4 recommended actions in the Global Plan;
- 2 of the Global Road Safety Performance Targets;
- 8 statements in the Stockholm Declaration;
- 4 recommendations of the Academic Expert Group of the 3rd Ministerial Conference on Global Road Safety;
- 6 interventions across 2 components in the Save LIVES package;
- 11 commitments in A/RES/76/294, the Political Declaration of the High-Level Meeting on Improving Global Road Safety.

## To reduce deaths and injuries

### ***Motorcycle helmet law, enforcement, and promotion help countries achieve the Global Plan target***

The Global Plan for the Decade of Action for Road Safety 2021–2030 (Global Plan)<sup>2</sup> sets a target to reduce road traffic deaths and injuries by 50% by 2030. Achieving this target requires implementation of evidence-based interventions that are known to reduce road traffic deaths and injuries. Motorcycle helmet law, combined with enforcement and publicity are one such evidence-based intervention.

### ***Motorcycles are one of the most unsafe forms of transport***

Two- and three-wheelers account for 28% of all road traffic fatalities worldwide. South-East Asia and the Western Pacific regions report the highest numbers of two- and three-wheeler fatalities: 43% and 36% respectively. All regions are seeing an increase in motorcyclist fatality rates (Figure 1).<sup>3</sup>

<sup>2</sup>World Health Organization. (2021). *Global Plan for the Decade of Action for Road Safety 2021-2030*

<sup>3</sup>World Health Organization. (2018). *Global status report on road safety 2018*. Geneva: World Health Organization

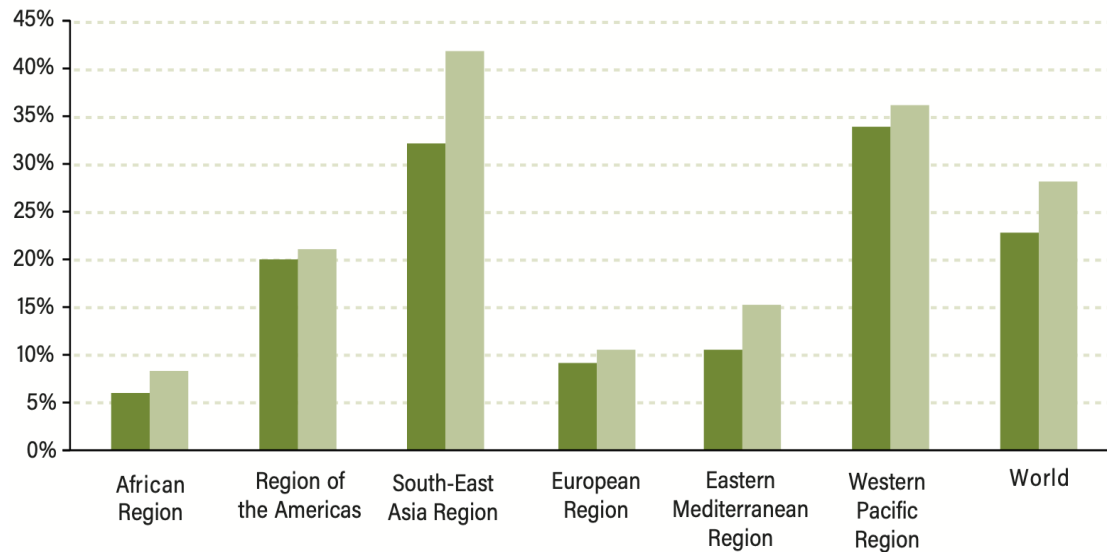


Figure 1: Proportion of motorcyclist deaths by WHO region, comparison between 2013 and 2016<sup>4</sup>

Source: World Health Organization reproduced under Creative Commons Licence CC BY-NC-SA 3.0 IGO

Motorcycles are widely used in many countries for personal and public transport as well as for service delivery. Most low- and middle-income countries have seen a significant increase in the use of motorcycles due to the high cost of other modes of transportation and in response to an increase in traffic congestion in urban areas.<sup>5</sup> However, motorcycle riding remains one of the most unsafe forms of transport.<sup>6</sup>

Unlike car occupants who may have crash protection from airbags and seat belts, motorcycle users lack crash protection, making them particularly vulnerable to traffic related fatalities and injuries.<sup>7</sup> Motorcycle riders are 27 times more likely to die in a traffic crash than car occupants and are about six times as likely to be injured.<sup>8</sup>

### **Using a helmet decreases the risk of death and serious injury in a motorcycle crash**

Injuries to the head and neck are among the main causes of death and severe injury to two- and three-wheeled vehicle users.<sup>9</sup> A motorcycle helmet reduces the impact of acceleration-deceleration forces to the brain, as well the impact of the direct contact with an object or surface at the moment of a crash.<sup>10</sup>

Using helmets can decrease the risk of death in a motorcycle crash by 39% and serious injuries by 72%.<sup>11</sup> (Figure 2)

<sup>4</sup> World Health Organization. (2022). Powered two- and three-wheeler safety: a road safety manual for decision-makers and practitioners, 2nd Edition. WHO, Geneva

<sup>5</sup> World Health Organization. (2022). Powered two- and three-wheeler safety: a road safety manual for decision-makers and practitioners, 2nd Edition. WHO, Geneva

<sup>6</sup> UNESCAP. (2019). Strategies to Tackle the Issue of Speed for Road Safety in the Asia-Pacific Region: Implementation Framework. UNESCAP, Bangkok.

<sup>7</sup> World Health Organization. (2022). Powered two- and three-wheeler safety: a road safety manual for decision-makers and practitioners, 2nd Edition. WHO, Geneva

<sup>8</sup> World Health Organization. (2006). Helmets: a road safety manual for decision-makers and practitioners. WHO, Geneva

<sup>9</sup> World Health Organization. (2022). Powered two- and three-wheeler safety: a road safety manual for decision-makers and practitioners, 2nd Edition. WHO, Geneva

<sup>10</sup> World Health Organization. (2022). Powered two- and three-wheeler safety: a road safety manual for decision-makers and practitioners, 2nd Edition. WHO, Geneva

<sup>11</sup> World Health Organization. (2006). Helmets: a road safety manual for decision-makers and practitioners. WHO, Geneva

Not wearing a helmet	Wearing a helmet
increases the risk of sustaining a head injury;	decreases the risk and severity of injuries by about 72%;
increases the severity of head injuries;	decreases the likelihood of death by up to 39%, with the probability depending on the speed of the motorcycle involved;
increases the time spent in hospital;	decreases the costs of health care associated with crashes.
increases the likelihood of dying from a head injury.	

Figure 2: Summary of systematic review of effectiveness of motorcycle helmets, WHO<sup>12</sup>  
Source: World Health Organization

### **Helmets manufactured to a standard and worn correctly protect motorcycle riders against crash related head and neck injuries**

The full benefit of death and serious injury reduction from motorcycle helmet use depends on the amount of face coverage (see different styles in Figure 3) and whether the helmet is appropriately fastened and meets helmet standards. Full-face helmets provide the highest level of protection against crash related head and neck injuries than other types of helmet.<sup>13</sup> Helmets must be fully fastened<sup>14</sup> and follow helmet standards<sup>15</sup> (e.g., UN Regulation No.22, ECE-22<sup>16</sup>) to be effective. A helmet law, enforcement, and publicity must therefore cover all these aspects.

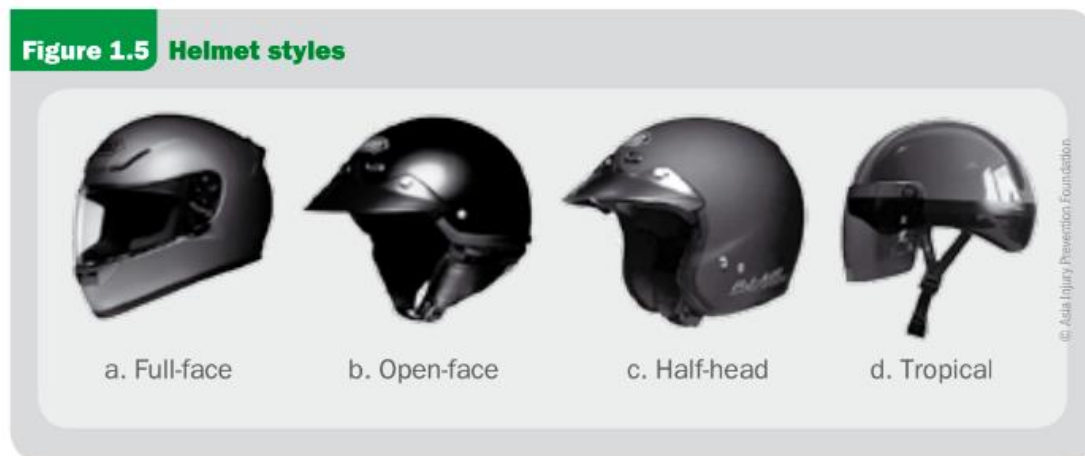


Figure 3 - Different helmet styles<sup>17</sup>  
Source: World Health Organization

<sup>12</sup> World Health Organization. (2006). Helmets: a road safety manual for decision-makers and practitioners. WHO, Geneva

<sup>13</sup> Chaichan, S., Asawalertsang, T., Veerapongtongchai, P., Chattakul, P., Khamsai, S., Pongkulkiat, P., & Sawanyawisuth, K. (2020). Are full-face helmets the most effective in preventing head and neck injury in motorcycle accidents? A meta-analysis. Preventive Medicine Reports, 13;19:101118.

<sup>14</sup> Thai, K.T., McIntosh, A.S., & Pang, T.Y. (2015). Factors affecting motorcycle helmet use: size selection, stability, and position. Traffic injury prevention, 16(3), 276-282.

<sup>15</sup> World Health Organization. (2022). Powered two- and three-wheeler safety: a road safety manual for decision-makers and practitioners, 2nd Edition. WHO, Geneva.

<sup>16</sup> United Nations. (2002). Addendum 21: Regulation No. 22. Revision 4.

<sup>17</sup> World Health Organization. (2006). Helmets: a road safety manual for decision-makers and practitioners. WHO, Geneva.

## ***Motorcycle helmet law, enforcement and promotion increase helmet wearing by motorcycle riders***

In places where the helmet law, enforcement and promotion are executed together, helmet wearing rate reaches over 95%.<sup>18</sup> Increased helmet wearing achieved through the three elements of law, enforcement, and promotion decrease fatal and nonfatal injuries. In particular, motorcycle-related head injuries are reduced by as much as 33% and the severity of the injury is reduced.<sup>19,20</sup>

## ***Motorcycle helmet law that applies to all motorcycle drivers and passengers are more effective***

A universal helmet law—that applies to all motorcycle drivers and passengers irrespective of age and gender on all public roads in both rural and urban settings—is much more effective in increasing helmet wearing and reducing fatal and nonfatal motorcycle crash injuries than a law that exempts certain groups or settings.<sup>21</sup>

A helmet law with exemptions is more difficult to enforce, making it less effective than a universal helmet law. For example, if a law exempts helmet wearing based on the age of the rider, it is very difficult for enforcement officers to single out how old a rider is when s/he is riding past on a motorcycle.<sup>22</sup>

The helmet law and standards must also consider the size of children. Children's helmet wearing rates are often found to be lower than adults' in some countries.<sup>23</sup> Children not wearing a helmet are more likely to be injured and their injuries more severe than those wearing a helmet in the event of a motorcycle crash.<sup>24</sup> However, currently, the smallest helmet size regulated by standards would approximately fit the head of a five- to seven-year-old child.<sup>25</sup>

## ***Enforcement and promotion together generate greater compliance***

A helmet law, no matter how comprehensive, could not have the full effect of correct helmet use without enforcement that effectively applies penalties for noncompliance.<sup>26</sup>

Promotion—that informs motorcycle riders about enforcement of the helmet-wearing law, the penalties for noncompliance, and why helmet wearing is being enforced (i.e., to protect motorcycle riders from head and brain injuries)—generates greater compliance with the law.<sup>27</sup>

Promotion also warns people what is illegal and that they may receive an unattractive penalty for noncompliance. This should be done in advance of enforcement to give motorcycle riders time to purchase the right helmet. This creates a perception of fairness, making the law and enforcement more effective.<sup>28</sup> However, promotion without the law or enforcement will not increase helmet use or reduce deaths and injuries to the same degree.

<sup>18</sup> Passmore, J.W., Nguyen, L.H., Nguyen, N.P., & Olivé, J.-M. (2010). The formulation and implementation of a national helmet law: a case study from Viet Nam. *Bulletin of the World Health Organization*, 88 (10), 783 - 787.

<sup>19</sup> Lee, J. Mandatory helmet legislation as a policy tool for reducing motorcycle fatalities: pinpointing the efficacy of universal helmet laws. *Accident Analysis & Prevention*, 111, 173-183.

<sup>20</sup> McGwin, G.J. Jr, Whatley, J., Metzger, J., Valent, F., Barbone, F., & Rue, L.W. (2004). The effect of state motorcycle licensing laws on motorcycle driver mortality rates. *The Journal of Trauma: Injury, Infection, and Critical Care* 56(2):p 415-419.

<sup>21</sup> Peng, Y., Vaidya, N., Finnie, R., Reynolds, J., Dumitru, C., Njie, G., Elder, R., Ivers, R., Sakashita, C., Shults, R.A., Sleet, D.A., & Compton, R.P. (2017). Community Preventive Services Task Force. Universal Motorcycle Helmet Laws to Reduce Injuries: A Community Guide Systematic Review. *American Journal of Preventive Medicine*;52(6):820-832.

<sup>22</sup> World Health Organization. (2006). *Helmets: a road safety manual for decision-makers and practitioners*. WHO, Geneva.

<sup>23</sup> Lambrosquini, F., González, F., Bottinelli, E., et al. (2017). Study on the Conditions for Children Transport on Motorcycles in Latin America. *Fundación Gonzalo Rodríguez*.

<sup>24</sup> World Health Organization. (2022). *Powered two- and three-wheeler safety: a road safety manual for decision-makers and practitioners*, 2nd Edition. WHO, Geneva.

<sup>25</sup> World Health Organization. (2022). *Powered two- and three-wheeler safety: a road safety manual for decision-makers and practitioners*, 2nd Edition. WHO, Geneva.

<sup>26</sup> World Health Organization. (2017). *Powered two- and three-wheeler safety: a road safety manual for decision-makers and practitioners*. WHO, Geneva.

<sup>27</sup> World Health Organization. (2006). *Helmets: a road safety manual for decision-makers and practitioners*. WHO, Geneva.

<sup>28</sup> Bao, J., Bachani, A.M., Cuong, P., Ngoc Quang, L., Nguyen, N., & Hyder, A. (2017). Trends in motorcycle helmet use in Vietnam: results from a four-year study. *Public Health*; 144:S39-S44.

<sup>29</sup> Sakashita, C., Fleiter, J.J., Cliff, D., Flieger, M., Harman, B., & Lilley, M. (2021). *A Guide to the Use of Penalties to Improve Road Safety*. Global Road Safety Partnership, Geneva, Switzerland.

## ***To implement a Safe System approach***

The implementation of a universal law for correctly-worn standard motorcycle helmets, with associated enforcement and promotion, demonstrates the adoption of the Safe System approach. The Safe System approach is a human-centric approach which dictates the design, use and operation of our road transport system to protect the human road users.<sup>29</sup> The human body, without physical protection, is not built to withstand impact forces greater than approximately 30 km/h and the inherent lack of crash protection to motorcycle riders puts them at a higher risk for injuries and deaths and injuries of greater severity.<sup>30</sup> Correct wearing of standard motorcycle helmets protects the heads of riders.

## ***For economic benefits***

### ***Motorcycle helmet law, enforcement and promotion reduce costs for government, individuals, and businesses***

Motorcycle helmet law, enforcement and promotion together save lives and reduce the severity of crash injuries, thereby reducing economic costs and positively contributing to a country's economic growth.

The economic costs related to injury and loss of life from traffic crashes include money needed to treat injuries, loss of hours worked, vehicle repair costs, insurance or third-party costs, and costs of congestion from a crash.

### ***Motorcycle helmet law, enforcement and promotion can contribute to increasing GDP***

A World Bank study highlighted that halving road crash deaths and injuries could generate additional flows of income, with increases in GDP per capita over 24 years as large as 7.1% in Tanzania, 7.2% in the Philippines, 14% in India, 15% in China, and 22.2% in Thailand.<sup>31</sup>

---

Elliott, B. (2003). Deterrence Theory Revisited, Road Safety Research, Policing and Education Conference - From Research to Action: Conference Proceedings. Sydney: NSW Roads and Traffic Authority.

<sup>29</sup> World Road Association. (2019). The Safe System Approach - Road Safety Manual: A Manual for Practitioners and Decision Makers on Implementing Safe System Infrastructure.

<sup>30</sup> Chawla, H., Karaca, I., & Savolainen, P.T. (2019). Contrasting Crash- and Non-Crash-Involved Riders: Analysis of Data from the Motorcycle Crash Causation Study. Transportation Research Record, 2673(7), 122-131.

Lam, C., Pai, C-W., Chuang, C-C., Yen, Y-C., Wu, C-C., Yu, S-H., et al. (2019) Rider factors associated with severe injury after a light motorcycle crash: A multicentre study in an emerging economy setting. PLoS ONE 14(6): e0219132.

Waseem, M., Ahmed, A., & Saeed, T.U. (2019). Factors affecting motorcyclists' injury severities: An empirical assessment using random parameters logit model with heterogeneity in means and variances. Accident Analysis & Prevention;123:12-19.

<sup>31</sup> World Bank. (2017). The High Toll of Traffic Injuries: Unacceptable and Preventable. World Bank.

## Successful implementations

### **Thailand: 41.4% decrease in head injuries and 20.8% decrease in fatalities from helmet law, enforcement, and promotion**

In Thailand, a helmet law was enacted nationwide in 1994, legally mandating the wearing of a helmet by motorcycle drivers and passengers. Immediately after enactment, the helmet law was enforced for 90 days in Bangkok, 180 days in 17 provinces, and 360 days in the rest of the country. In Khon Kaen province, the helmet law was widely promoted, and these campaigns continued even after the police began issuing fines. With the combination of helmet law, enforcement, and promotion, helmet wearing in Khon Kaen increased five-fold, head injuries decreased by 41.4%, and deaths decreased by 20.8%.<sup>32</sup>

### **Italy: 66% decrease in hospital admissions for traumatic brain injury from making the helmet law more comprehensive**

In Italy, only motorcycle drivers (not passengers) were legally required to wear helmets and moped drivers over the age of 18 were exempt. In 2000, a much more comprehensive law, requiring the use of helmets by all motorcycle and moped drivers and passengers, irrespective of age, was adopted and combined with enforcement and promotion. Across the country, helmet-wearing rates rose up to 95% in some areas, hospital admissions for traumatic brain injury declined by 66%, and the number of blunt head injuries (epidural hemorrhages) involving motorcycle and moped riders was almost eliminated.<sup>33</sup>

### **Vietnam: 1,557 lives saved and 2,495 serious injuries prevented in the first year of enacting helmet law, enforcement, and promotion**

In 2007, the Vietnamese government enacted, promoted, and implemented a new helmet law mandating all motorcycle drivers and passengers to wear helmets on all roads. National data showed that the combination of helmet law, enforcement, and promotion reduced road traffic deaths by 18% in the first three months and saved around 1,557 lives and prevented 2,495 serious injuries in the first year.<sup>34</sup> According to another analysis, the law prevented 20,609 deaths and 412,175 serious injuries from 2008 to 2013, and by 2013, over 90% of Vietnamese motorcyclists were wearing helmets.<sup>35</sup>

### **Ha Nam and Ninh Binh provinces, Vietnam: Increased correct helmet use from 34.3/68.9% to 76.9/72.2% from enforcement and promotion of the helmet law\***

An observational helmet use study between June 2011 and December 2014 found that correct helmet use increased from 34.3% to 76.9% in Ha Nam and from 68.9% to 72.2% in Ninh Binh. This result was attributed to enforcement and promotion of the law and benefits of correctly wearing standard helmets.<sup>36</sup>

*\*In principle, wearing a motorcycle helmet reduces the risk and severity of injuries by around 70% and the likelihood of death by up to 40%.<sup>37</sup> Therefore, any increase in the correct helmet use achieved via a comprehensive law with enforcement and associated promotion has death and injury reduction benefits.<sup>38</sup>*

<sup>32</sup> Ichikawa, M., Chadbunchachai, W., & Marui, E. Effect of the helmet act for motorcyclists in Thailand. *Accident; Analysis and Prevention*. 2003 Mar;35 (2):183-189. DOI: 10.1016/s0001-4575(01)00102-6. PMID: 12504139.

<sup>33</sup> P. 19, World Health Organization, (2006), *Helmets: a road safety manual for decision-makers and practitioners*. Geneva.

<sup>34</sup> P. 181-186, Glassman, A., & Temin, M. (2016). *Millions Saved New Cases Of Proven Success In Global Health*. Brookings Institution Press And Center for Global Development.; Passmore, J.W., Nguyen, L.H., Nguyen, N.P., & Olivé, J.-M. (2010). *The formulation and implementation of a national helmet law: a case study from Viet Nam*. *Bull World Health Organ*. 88 (10), 783-7.

<sup>35</sup> Asia Injury Prevention Foundation. 2014. *Developing an Integrated Campaign to Address Child Helmet Use in Vietnam: A Case Study*. New York: Atlantic Philanthropies.

<sup>36</sup> Bao, J., Bachani, A.M., Viet, C.P., Quang, L.N., Nguyen, N., & Hyder, A.A. (2017). Trends in motorcycle helmet use in Vietnam: results from a four-year study. *Public Health*, 144, S39-S44.

<sup>37</sup> World Health Organization, (2006), *Helmets: a road safety manual for decision-makers and practitioners*. Geneva.

<sup>38</sup> World Health Organization, (2006), *Helmets: a road safety manual for decision-makers and practitioners*. Geneva.

## How to implement it

The following guidance documents can support governments in the design and implementation of motorcycle helmet law, enforcement, and promotion:

- *Powered two- and three-wheeler safety: a road safety manual for decision-makers and practitioners* developed by the World Health Organization, pages 22-24, in particular, the checklist on page 23.<sup>39</sup>
- *Helmets: a road safety manual for decision-makers and practitioners* developed by the World Health Organization, pages 75-108.<sup>40</sup>
- UN Regulation No. 22, ECE-22, United Nations European Economic Commission, last amended in 2022 for helmet standards.<sup>41</sup>
- *A Guide to the Use of Penalties to Improve Road Safety* developed by the Global Road Safety Partnership.<sup>42</sup>

---

Peng, Y., Vaidya, N., Finnie, R., Reynolds, J., Dumitru, C., Njie, G., Elder, R., Ivers, R., Sakashita, C., Shults, R.A., Sleet, D.A., & Compton, R.P. (2017). Universal Motorcycle Helmet Laws to Reduce Injuries: A Community Guide Systematic Review. *American Journal of Preventive Medicine*, 52(6), 820–832.

Olsen, C.S., Thomas, A.M., Singleton, M., Gaichas, A.M., Smith, T.J., Smith, G.A., Peng, J., Bauer, M.J., Qu, M., Yeager, D., Kerns, T., Burch, C., & Cook, L.J. (2016). Motorcycle helmet effectiveness in reducing head, face and brain injuries by state and helmet law. *Injury Epidemiology*, 3(1).

<sup>39</sup> World Health Organization. (2022). *Powered two- and three-wheeler safety: a road safety manual for decision-makers and practitioners*, 2nd Edition. WHO, Geneva.

<sup>40</sup> World Health Organization. (2006). *Helmets: a road safety manual for decision-makers and practitioners*. WHO, Geneva.

<sup>41</sup> United Nations. (2002). Addendum 21: Regulation No. 22. Revision 4.

<sup>42</sup> Sakashita, C., Fleiter, J.J., Cliff, D., Fliieger, M., Harman, B. & Lilley, M. (2021). *A Guide to the Use of Penalties to Improve Road Safety*. Global Road Safety Partnership, Geneva, Switzerland.