CHARITY ENTREPRENEURSHIP

ROAD TRAFFIC SAFETY

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JANUARY 2022

RECOMMENDED

Research Report:
Health and Development Policy – Road Traffic Safety

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Date of publication: January 2022
Research period: 2021

Thanks to Zakariyau Yusuf for your assistance with the early research for this report, and to Antonia Personette and Urszula Zarosa for their contributions. We are also grateful to the experts who took the time to offer their thoughts on this research.

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Executive summary

Legislation is a commonly used tool to reduce road traffic injuries and fatalities in high-income countries. However, legislation is often lacking in low- and middle-income countries and, as a result, these countries disproportionately bear the global burden of road-related injuries and deaths.

We evaluated legislation across 5 key risk areas – speeding, drink-driving, helmet use, seat belt use, and child restraint use – and found that speed limits and seat belt legislation look to be the most promising.[1] Therefore, this report will focus on speeding, speed limits, and seat belt use (both improving existing seat belt legislation to ensure it extends to all occupants and introducing new legislation in countries where it is currently non-existent).

There is **strong evidence that speed is a key risk factor in road traffic injuries and fatalities, and that speed limits can reduce speeding**. A meta-analysis of 98 studies explored the relationship between average speed and the incidence of road-related injuries and fatalities and created a formula that can be used to calculate the expected reduction in injuries/fatalities as a result of a change in speed (as the expected effectiveness depends on the speed before and after). For example, when speed is reduced from 100 km/h to 90 km/h, the number of fatal accidents is reduced by 34.4%. A meta-analysis of 51 studies found that speed limits reduce average speeds by 25% of the change in speed limit.[2]

There is **also strong evidence that seat belt use reduces road-related injuries and deaths**. A meta-analysis of 30 studies found that wearing a seat belt can reduce fatalities among front-seat occupants by 40-50% and among rear-seat occupants by up to 25%.

Moreover, there is **good evidence that advocacy leads to policy change**. Looking at 84 case studies of advocacy in this space across the globe, we find an average

[1] Why did we rule out other risk areas?

- Helmets - We wanted to focus our efforts on countries with a sufficiently high DALY burden (>10,000 DALYs). We found that only 8 countries without existing legislation met this bar. Based on a quick BOTEC of the DALYs that could be averted through the introduction of a new helmet law in these countries (taking into account estimated reduction in fatalities and expected enforcement), we found that 5 of these countries no longer met this bar. This left us with 3 countries, 2 of which seemed politically intractable (Afghanistan and Somalia). As there was only 1 country left above the bar, we ruled out helmets as a focus as it wasn't very scalable.
- Drink-driving and child restraint use - focusing on these risk areas didn't look as cost-effective based on our cost-effectiveness analyses (using $96/DALY equivalent as our bar for cost-effectiveness).

[2] For example, when the speed limit is changed by 10 km/h, average speed changes by ~2.5 km/h.

success rate of ~48% with 40 of 84 campaigns resulting in policy change in an average of 2.6 years.

Mandatory seat belt use, for all occupants, and appropriate speed limits are both **extremely cost-effective** interventions. Our cost-effectiveness analysis yielded an estimated cost (in USD) per DALY equivalent[3] of

- $90 for improving seat belt legislation to ensure that rear-seat passengers are required to wear seat belts
- $48 for introducing new mandatory seat belt legislation for all occupants
- $42 for lowering speed limits to 50km/h in urban areas

when considering both charity and government costs.

However, there are **still some important concerns** around these interventions. **Experts caution that enforcement of road traffic safety legislation is poor,** and so even if we were to see policy change in this space in countries where appropriate legislation is currently lacking, it wouldn't necessarily mean that anything would actually change in practice. Moreover, although there doesn't appear to be substantial industry opposition to road traffic safety legislation, **the population might not like it**, which could make policy change more difficult. There is also potentially some risk in interventions that increase the cost of car use relative to the cost of motorcycle use, as such interventions could lead to increased mortality if road users switch from cars to motorcycles and appropriate motorcycle legislation is not in place.

Overall, our view is that policy work to improve or introduce new road traffic safety legislation is **an idea worth recommending** to future charity founders.

[3] We use DALY equivalent here as this includes both health and economic impacts, though the health impacts are the dominant factor.

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1 Introduction

This report has been produced by Charity Entrepreneurship (CE). CE's mission is to cause more effective charities to exist in the world by connecting talented individuals with high-impact intervention opportunities. We achieve this goal through an extensive research process and our Incubation Program. In 2021, our research process focused on the top policy and advocacy interventions within global health and development.

Advocacy to introduce new and/or improved road traffic safety laws was chosen by CE research staff as a potentially promising intervention within this category. This decision was the result of a 9-month process designed to identify interventions that were most likely to be high-impact avenues for future charity entrepreneurs. This process began by listing nearly 250 ideas and gradually narrowing down, examining them in more and more depth.

In order to assess how promising interventions would be for future charity entrepreneurs, we use a variety of different decision tools such as group consensus decision-making, weighted factor models, cost effectiveness analyses, quality of evidence assessments, case study analysis, and expert interviews.

This process was exploratory and rigorous, but not comprehensive – we did not research all 250 ideas in depth. As such, our decision not to take forward a charity idea to the point of writing a full report should not be seen as a view that the idea is not good.

2 Background

The intervention explored in this report is the introduction of road traffic safety legislation to reduce road traffic injuries and fatalities. While most high-income countries have regulations, many low- and middle-income countries (LMICs) do not and therefore disproportionately bear the burden of road-related deaths and injuries. For example, the World Health Organization's 2018 global status report on road safety identified that the risk of a road traffic death in low-income countries is more than 3 times higher than in high-income countries (with an average death rate of 27.5 deaths per 100,000 in low-income countries vs. an average death rate of 8.3 deaths per 100,000 in high-income countries), even though only 1% of the

world's registered vehicles can be found in low-income countries (whereas 40% can be found in high-income countries) (World Health Organization, 2018).

Speed limits are an integral component of a comprehensive speed management strategy, crucial to reducing fatal and serious crash risks. However, as of 2018, only 95 countries had appropriate speed limits in urban areas. Crucially, the presence of these best practice laws is much less common in middle- or low-income countries than in high-income countries: 37% and 13% in middle- and low-income countries, respectively, compared with 50% in high-income countries.

Seat belt use is a highly effective means of reducing road traffic injuries and deaths. Despite this, adequate seat belt legislation is still surprisingly uncommon, with only 105 countries adopting best practice and mandating the use of seat belts by both front- and rear-seat occupants. Only 7% of countries with seat belt laws meeting best practice are low-income countries.

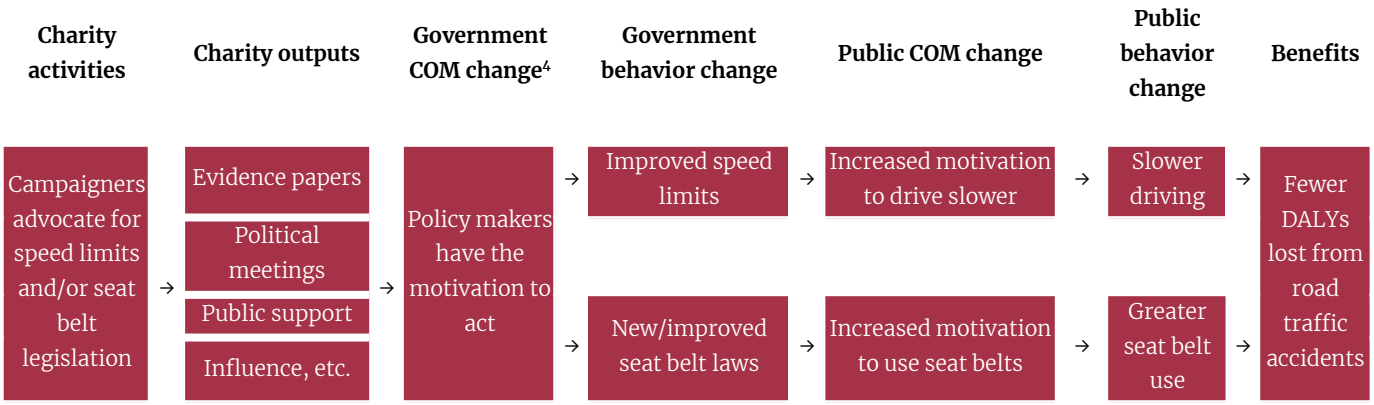
We recommend reducing existing speed limits to 50 km/h in urban areas in countries where speed limits are currently higher. For seat belt use, we recommend both improving existing legislation and introducing new legislation. Existing legislation can be improved in countries where it is currently only mandated to wear seat belts as the driver and front-seat passenger, as this requirement could be extended to rear-seat passengers. New legislation where it is currently lacking would mandate that all occupants must wear a seat belt.

We have also explored the promise of "country advocacy" as an approach where, rather than advocating for a specific idea such as reducing speed limits or using seat belts, a campaign group could work in a single country and advocate for a package of policy changes. This approach also looks promising and should be considered by the co-founders of this charity when deciding on an approach, especially if they feel like they have a particular advantage when working in one specific country.

3 Theories of change

The theory of change for advocating for reduced speed limits and new or improved seat belt legislation is illustrated in this section. We consider the necessary activities and outputs by the campaigning organization and the required behavior change from both the government and the public. We also highlight the key assumptions being made in this theory of change.

The theory of change for this intervention could be as follows:



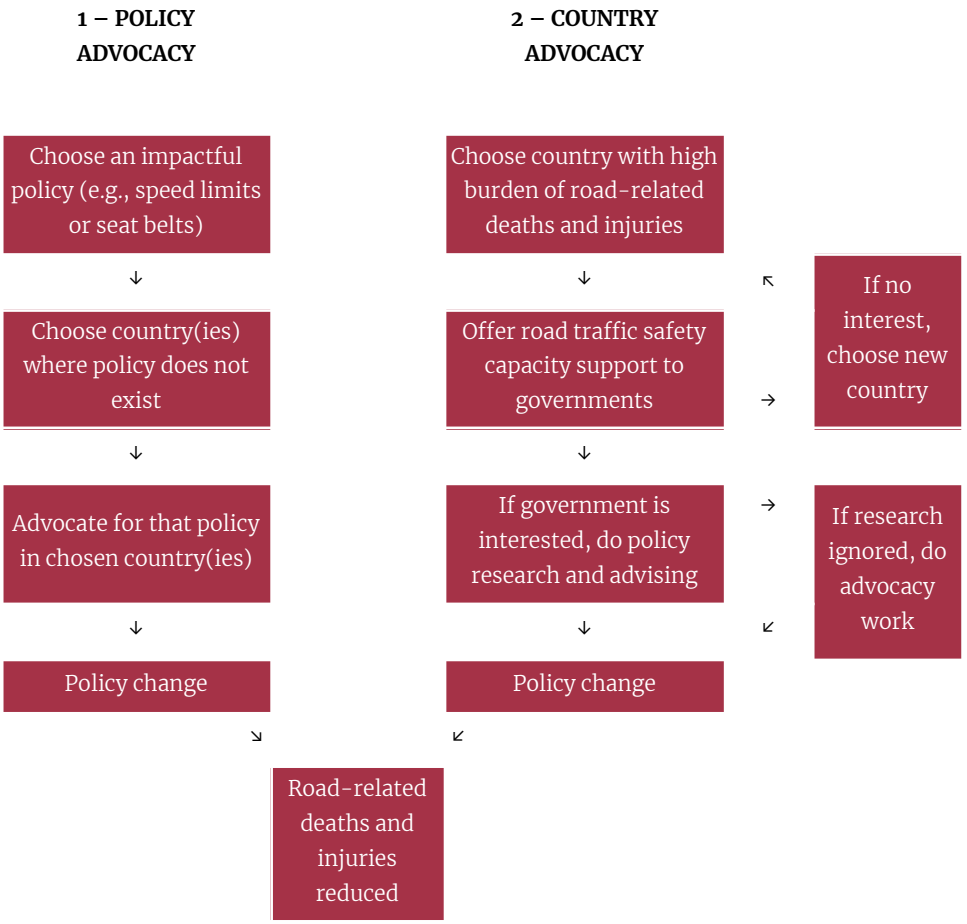
The key assumptions, corresponding to each step (i.e., "→") in the theory of change, are:

Campaigners can create policy outputs	Policy outputs are persuasive to decision makers	Outputs reach policy makers who have the opportunity to act, despite competing priorities. Outputs reach policy makers who have the capability to act	Laws are implemented in a way that ensures enforcement	Drivers were not already driving at speeds below the new speed limit[5] Cars have seat belts (including in rear seats)[6] There are minimal competing factors, e.g., pressures to drive fast for deliveries	Slower driving and seat belt use reduces deaths and injuries

Scale: key uncertainty, high uncertainty, some uncertainty, low uncertainty, unconcerning.

[4] COM refers to the capability, motivation, and opportunity for change from the COM-B model for behavior change (The Decision Lab, 2021).
[5] In countries where road quality and vehicle quality is low, driving speeds may be fairly slow even without appropriate speed limits.
[6] In the most promising countries identified for work on seat belt legislation (Egypt, Vietnam, Pakistan, Mexico, and Bangladesh) seat belts and seat belt anchorages are required for the front- and rear-seats in both new and imported cars. This should be a consideration for any future country selection. Information on vehicle standards can be found here: https://extranet.who.int/roadsafety/death-on-the-roads/#vehicles

We note two ways that this intervention could be approached:



4 Geographic assessment

The geographic assessment is done in two stages. First, we look at where existing organizations are working and what they are doing. This information will later be used as an input in the formal geographic assessment as a measure of neglectedness (the greater the number of organizations already working in a country, the less neglected the problem is in that country and, therefore, the less promising it is to start a new organization in). Second, we conduct the formal geographic assessment with the aim of finding the top priority countries for starting a new nonprofit.

4.1 Where existing organizations work

The organizations that we were able to identify in this mapping are those on the larger side. It is likely that we have missed many small organizations working in the space in various countries.

Most road traffic safety organizations don't seem to be focused (only) on advocacy and instead put forward other efforts such as road design, infrastructure, education, and enforcement. Those that are focused on advocacy are quite dispersed between different risk areas.

Here we will highlight the organizations that are working on advocacy and where they operate:

- Bloomberg Philanthropies - In the third phase of their road traffic safety work, working in the following countries: Argentina, Bangladesh, Brazil, China, Colombia, Ecuador, Ethiopia, Ghana, India, Malaysia, Mexico, Philippines, Tanzania, Uganda, and Vietnam (with more countries likely to follow in the future)
    - They state that their approach focuses on "strengthening legislation; improving key risky road behaviors with a focus on speeding; promoting infrastructure improvements and sustainable urban transportation; and advocating for improved vehicle safety standards" (Bloomberg Philanthropies, 2020)
- AIP Foundation
    - Vietnam - improving seat belt laws and introducing child seat laws
    - Thailand - improving speed limits
    - Myanmar - improving helmet laws (AIP Foundation, n.d.)
- Eastern Alliance for Safe and Sustainable Transport (EASST)
    - Azerbaijan - introducing child seat laws (Azerbaijan - EASST, 2019)
    - Kyrgyzstan - introducing child seat laws (EASST, 2019b)
- FIA Foundation
    - Paraguay - improving child seat laws (FIA Foundation: Natalie Draisin, Avi Silverman; and Fundación Gonzalo Rodriguez: Florencia González, Florencia Lambrosquini, Mathías Silva, and Federico Zugarramurdi, 2018)

From this mapping, it seems that the work of Bloomberg Philanthropies and the work of AIP Foundation in Vietnam and Thailand is most relevant as they are focusing on the same risk areas that we recommend for a new organization.

4.2 Geographic assessment

To assess which countries could be promising for a new organization to work in, we completed a more formal geographic assessment with all countries that do not

currently have appropriate legislation across all 5 risk areas[7] (this captures countries without any legislation as well as countries whose legislation is not currently adequate).

We focused on countries that had a DALY burden of >10,000 DALYs per year from road traffic injuries. We chose the most promising countries based on a calculation to determine the total number of DALYs that could be averted by working in that country, taking into account the following:

- The percentage of road injuries and deaths that are a result of that risk factor - for example, it is estimated that 30-50% of road traffic deaths are speed-related (World Health Organization, 2018)
- The expected reduction in injuries and deaths if the legislation is passed - for example, wearing a seat belt can reduce fatalities among front-seat occupants by 40-50% and among rear-seat occupants by up to 25% (Elvik et al., 2009)

Based on this geographic assessment, we found that the most DALYs could be averted through the following legislation:

- Improved speed limits
- New child restraint laws
- Improved seat belt laws
- New seat belt laws
- Improved drink-driving laws

Then, we performed cost-effectiveness analyses on these laws. When choosing locations, we chose countries where the expected enforcement was adequate. In practice, this means that when looking for countries where seat belt legislation can be improved, for example, we would not choose a country whose enforcement of existing seat belt legislation is rated 4 or below in WHO's global status report (and we first focus on countries where enforcement is good; that is, rated 8/10 or greater) (World Health Organization, 2018).

[7] The 5 key risk areas identified by the World Health Organization are speeding, drink-driving, helmet use, seat belt use, and child restraint use.

5 Quality of evidence

5.1 Evidence for these interventions preventing injuries and deaths

Speeding and speed limits

A meta-analysis of 98 studies by Elvik, Christensen, and Amundsen (2004) created the "Power Model of Speed," which calculates the expected reduction in fatalities and injuries as a result of a change in speed (Elvik, Christensen, and Amundsen, 2004). This study seems like the accepted method for estimating the effects of speed changes on injuries and fatalities.

A meta-analysis of 51 studies, completed in the 2nd edition of The Handbook of Road Safety Measures, found that speed limits reduce average speeds by 25% of the change in speed limit. For example, in practice, this means that when the speed limit is changed by 10 km/h, average speed changes by about 2.5 km/h (Elvik et al., 2009).

Seat belts

A meta-analysis of 30 studies, completed in the 2nd edition of The Handbook of Road Safety Measures, found that wearing a seat belt can reduce fatalities among front-seat occupants by 40-50% and among rear-seat car occupants by up to 25% (Elvik et al., 2009). It seems that the results of this meta-analysis have become the consensus in the space, as these are the numbers that are quoted by the World Health Organization, the UN, road traffic safety organizations, and governments when writing their own reports on road traffic safety.

5.2 Evidence that advocacy leads to policy change in this space

Looking at 84 case studies of advocacy in this space across the globe,[8] we found that previous advocacy efforts have been quite successful. The average success rate was ~48%, with 40 of 84 campaigns resulting in policy change in an average of 2.6 years (the overall range of time taken to achieve success was 1-8 years). Most of the organizations that led these campaigns were relatively large, but there are a few

[8] Unlike in other sections of the report, we have included case studies across all 5 risk areas here (not just for speed limits and seat belt use).

examples of small auto-clubs achieving policy change by following steps outlined in a toolkit for policy change from FIA Foundation. You can see the specific steps taken by these organizations in Annex 1.

Of the remaining 44 case studies, we have classified 42 as still in progress. These campaigns have been in progress for an average of 3.9 years (the overall time range of campaigns still in progress is 2-7 years). 2 campaigns appear to be defunct after seeing no success in an average of 3.5 years.

You can find all of the case studies used in Annex 1.

Opposition

There doesn't appear to be substantial industry opposition to road traffic safety legislation. The most likely source of opposition is the car users who will be affected. If the population dislikes the proposed policy changes, advocacy may be more difficult and/or the policy change may be less likely to happen. However, it could also be the case that rather than preventing the law from being passed, those who are opposed may just need more strict enforcement than the average road user to actually change their behavior.

5.3 Evidence of compliance with/enforcement of road safety legislation

We can find evidence of compliance/enforcement through two different avenues:

- How countries rank their enforcement of legislation
- Statistics on enforcement, eg., average seat belt wearing rate

How countries rank their enforcement of legislation

When evaluating the status of road traffic safety legislation in each country for its global status report, the World Health Organization asked a group of +/-8 respondents from different sectors (health, police, transport, NGOs, or academic) to rate the enforcement of legislation in their country. The World Health Organization defines "good" enforcement as an average rating of 8/10 or greater, and we extend this definition as follows: "okay" enforcement is a rating of 5-7 out of 10, and "poor" enforcement is 4 or lower (World Health Organization, 2018).

Looking at the average rating for enforcement in all countries that participated in the 2018 global status report for each risk area, we see that, on average, the enforcement for each law is "okay":

- Speed limits - average enforcement rating of 5.53
- Seat belt laws - average enforcement rating of 6.06

(World Health Organization, 2018)

This average was calculated by extracting the information from the WHO's status report, compiling it in a spreadsheet, and taking the mean.

Statistics on enforcement

The World Health Organization's global status report also lists statistics on the enforcement of legislation for seat belt laws in terms of the average usage rates (World Health Organization, 2018).[9] The data for seat belt legislation is as follows:

- Average wearing rate for drivers: 73.77%
- Average wearing rate for front-seat passengers: 69.78%
- Average wearing rate for rear-seat passengers: 45.82%
- Average wearing rate for all occupants: 68.07%

6 Expert views

6.1 Summary of views

Unfortunately, we only managed to speak with 2 experts in this area (one of whom was only contacted through a short email exchange). Both of these experts worked at existing road traffic safety organizations that operate primarily in Africa.

Both experts cautioned that it is difficult to make progress in this area when working in Africa because enforcement of road traffic safety laws is very poor due to corruption. Therefore, even if new or improved legislation were to pass, it might not actually lead to change.

The experts had mixed views on whether a new organization should work in this space. One suggested that we should support local organizations instead of creating a new one. The other suggested that there is a lot of work still to be done in this space, so a new organization could be helpful - however, they suggested that this

[9] Note that they do not have anything similar for speeding.

new actor work on the enforcement of existing laws, rather than the creation of new or improvement of existing laws.

6.2 Our takeaways

The main takeaway from these expert interviews is that enforcement is particularly important when considering the impact of road traffic safety legislation.

Because of this consideration, we will ensure that when modeling the estimated impact of new or improved legislation in a cost-effectiveness analysis, the expected enforcement of legislation will be used as a discount on the total number of DALYs averted. We will base this number on the enforcement of existing road traffic safety legislation in countries similar to the country being modeled (or the enforcement of existing road traffic safety legislation in the country being modeled, if appropriate). Also, when evaluating where improvements could be made to existing legislation, we will take into account expected enforcement during country selection and will not recommend working in a country where we expect enforcement to be poor.[10]

7 Cost-effectiveness analysis

Our cost-effectiveness analyses model policy changes in example countries that were chosen as they had the highest impact ceiling for the policy being considered as calculated in our geographic assessment. This criterion does not necessarily mean that these are definitely the best countries for these interventions, as it does not consider contextual factors (eg., co-founder fit) or the fact that it may make more sense to start work in a smaller country when the charity is first starting out.

Using the cost-effectiveness of alcohol taxation (modeled in 2020 with a cost per DALY equivalent of $96) as the bar for policy interventions to meet to be considered promising, the following road traffic safety policy changes look most promising:

- Increase seat belt use - Improve existing laws: Ensure legislation requires rear-seat passengers to wear a seat belt
- Increase seat belt use - New law: Introduce legislation requiring drivers and both front- and rear-seat passengers to wear seat belts
- Reduce speeding - Reduce speed limits in urban areas to 50 km/h

[10] In practice, this means that when looking for countries where seat belt legislation can be improved, we will not choose a country whose enforcement of existing seat-belt legislation is rated 4 or below in WHO's global status report (and we will prioritize countries where enforcement is good; that is, rated 8/10 or greater).

Policy	Example country	Total DALYs averted (if campaign is successful)	Total DALYs averted (expected)	Economic benefits	Charity cost per DALY equivalent	Charity + government cost per DALY equivalent
Ensure legislation requires rear-seat passengers to wear a seat belt	Egypt	121,277	57,752	$402,237,129 (or equivalent to 17,699 DALYs)	$17	$90
Introduce legislation requiring drivers and both front- and rear-seat passengers to wear seat belts	Mexico[11]	108,068	51,462	$560,287,444 (or equivalent to 20,261 DALYs)	$19	$48
Lower speed limits to 50 km/h (without traffic calming)[12]	Brazil	680,079	323,854	$3,308,757,022 (or equivalent to 146,933 DALYs)	$3	$42

We also found that "country advocacy" could be a promising approach. A charity would work in a country with high avertable road traffic deaths and injuries to improve their legislation across all relevant risk areas. We completed two cost-effectiveness analyses in example countries (Egypt and Brazil) evaluating this approach.

Example country	Total DALYs averted (if campaign is successful)	Total DALYs averted (expected)	Economic benefits	Charity cost per DALY equivalent	Charity + government cost per DALY equivalent
Egypt	1,431,595	649,757	$5,050,932,649 (or equivalent to 222,250 DALYs)	$6	$59

[11] When looking purely at the DALY burden, Afghanistan actually looks like the most promising country for this intervention. However, a new charity would find it very difficult to work in Afghanistan, so Mexico was modeled instead as the country with the second highest DALY burden.
[12] Traffic calming includes building speed bumps and using speed cameras to help enforce the new, lower speed limit. We evaluated speed limits with and without traffic calming measures, but due to the increased government costs of traffic calming, this intervention looks more promising without.

Brazil	681,853	324,120	$3,368,984,352 (or equivalent to 149,607 DALYs)	$5	$79

These cost-effectiveness analyses model two sources of impact: health and income. These variables are described below using the illustrative example of a seat belt use policy change in Egypt that improves existing laws by requiring rear-seat passengers to wear a seat belt. All cost-effectiveness analyses use similar inputs, which can be found and are explained in the models linked above.

7.1 Health effects

The health effects of legislation requiring rear-seat passengers to wear a seat belt are defined in terms of total DALYs averted annually following policy change. To calculate this number, we used the following inputs:

- Total annual DALYs lost due to motor vehicle injuries in Egypt: we used the DALYs lost due to motor vehicle injuries rather than total DALYs lost due to road traffic injuries, as seat belt laws will only impact those in the vehicle. We sourced our data from GBD Compare (2017), which evaluates the DALYs lost from motor vehicles and motorcycles separately (GBD Results Tool, n.d.). This distinction ensures that we did not include DALYs that are not applicable to a seat belt law.

- Percentage of motor vehicle users affected by a rear seat belt law: we found that in Egypt, on average, there are 1.5 passengers per car, including the driver (The World Bank, n.d.). We assumed a 50% chance of other passengers being in the rear seat, which gives us a ~17% chance of a motor vehicle user being a rear-seat passenger.

- Percentage reduction in fatalities due to seat belt use in the rear seat: 25% (Elvik et al., 2009).

- Probability of success: we used an average probability of success of 47.62%, as calculated from the case studies of other road traffic safety advocacy groups (summarized in Evidence that advocacy leads to policy change in this space and detailed in Annex 1)

    - Note that for some policy interventions, the costs to governments would be increased. For these interventions, we decreased the probability of success to reflect these increased costs

- Enforcement: Expected seat belt wearing rate - we know that not all passengers will wear their seat belt following policy change. To try to estimate the percentage of passengers that would change their behavior, we looked at:
    - The current seat belt wearing rate of drivers and front-seat passengers in Egypt (as this is already required by law) (World Health Organization, 2011)
    - The seat belt wearing rate of rear-seat passengers in countries that rated the enforcement of their seat belt laws similarly to Egypt (World Health Organization, 2018).
    - A discounted seat belt wearing rate based on current usage in Egypt
        - When assessing the average seat belt use of countries whose enforcement was rated 7/10, as in Egypt, we found that rear-seat passengers tend to wear their seat belts less frequently than front-seat passengers: there is an average percentage point difference of 34.6%.
        - Therefore, we discounted the current seat belt usage in Egypt (70%) by the expected difference between seat belt use in front- and rear-seat passengers (34.6%) to get an average estimated rear-seat seat belt use of 35.4%

- Percentage of rear-seat passengers already wearing seat belts: we thought it was likely the case that some rear-seat passengers already wear seat belts, even without a policy in place. We estimated this percentage at 5%, based on the lowest percentage of people who wear rear seat belts when they are required by law.

Using these inputs, we calculated an estimate for the total number of DALYs potentially averted each year. Then, to estimate the overall impact of the charity over its lifetime, we also used the following:

- Time taken for the campaign to be a success: we used the average time taken until success—2.6 years—as calculated from the case studies of other road traffic safety advocacy groups (summarized in Evidence that advocacy leads to policy change in this space and detailed in Annex 1)

    - This timeline results in health and economic benefits emerging 4 years after the charity is founded

- A 7.5% likelihood each year that the Egyptian government would have amended its seat belt law without intervention. This may seem quite low, but there are currently no known advocacy organizations working on policy in Egypt, and Egypt's road traffic safety legislation is lacking in several risk areas; i.e., they do not have a good track record of change
    - We have modeled the impact for 50 years, as the number of DALYs averted any farther into the future is negligible given the 7.5% reduction each year
    - Note that this percentage likelihood differs between interventions and locations based on the number of advocacy organizations already working in the country and the country's track record for policy change on road traffic safety

- A discount rate of 4%, as we are evaluating impact in the future and we want to evaluate impact in present value terms

We then converted the health effects into monetary terms. The monetary value of averting a DALY is assumed to be equal to 2.8 times the per capita income in Egypt. This is based on GiveWell's estimates of the trade-offs people are willing to make between income and health (GiveWell, 2019).

7.2 Income effects

The World Health Organization has estimated that the economic impact of road traffic injuries is approximately 3% of GDP (World Health Organization, 2015a).[13] We discount this estimate by the percentage of road traffic injuries that are from motor vehicles (estimated to be 53% in Egypt, taking an average of WHO's and GBD Compare's numbers (GBD Results Tool, n.d.; World Health Organization, 2018)) to get a more accurate estimate of the impact of a rear seat belt law.

7.3 Costs

Our analysis of charity costs was very simple, and was largely based on the costs modeled in our alcohol taxation cost-effectiveness analysis from 2020. We held

[13] We used the global average economic impact instead of the specific estimated economic impact of road traffic injuries in the country being modeled due to lack of data for some countries and because the economic benefits are more speculative, so we thought there was a case for keeping this number constant.

these costs constant throughout all of the cost-effectiveness analysis models made this year.

Our analysis of government costs was more complex and was based on the costs of, for example, previous campaigns to increase seat belt use and the estimated costs of employing additional traffic police. We took an average of the following three inputs:

- A campaign to increase seat belt use in South Africa over a one-year period cost US$300,000 (Harris and Olukoga, 2005). This campaign only took place in one city, so we adjusted the estimated costs to be more applicable to a country-level campaign in Egypt by multiplying the estimated costs by the ratio of the number of cars registered in eThekwini vs. the number of cars registered in Egypt as a whole
- The main enforcement mechanism used in the campaign in South Africa was employing an additional 10 traffic sergeants (Harris and Olukoga, 2005). Again we used the multiplier of the ratio of the number of cars registered in eThekwini vs. the number of cars registered in Egypt as a whole to estimate the number of additional traffic sergeants that would need to be employed to improve enforcement in Egypt. Then, we found the average annual salary of traffic sergeants in Egypt and multiplied the number of sergeants required by their annual salary to get another cost estimate.
- Another campaign to increase seat belt use was run in Guangzhou, China (*Seat-belts and child restraints*, n.d.). As we did with South Africa, we adjusted the estimated costs of this campaign based on the ratio of the number of cars registered in Guangzhou vs. the number of cars registered in Egypt as a whole.

8 Implementation

8.1 Talent

Speed limits and seat belt legislation is not a prohibitively complex area, so it shouldn't be difficult to find talent capable of working on these issues. The main complexities may derive from ensuring the enforcement of legislation once it has been amended or introduced, but it is unlikely that talent would be a limiting factor to overcoming these issues.

8.2 Access

Information

There has been significant work done on road traffic safety legislation in the past, so there is information available on what works and what doesn't work as well as toolkits for making progress in the 5 main risk areas.

There is a lack of up-to-date information on current legislation enforcement levels. So far, the World Health Organization's global status report is the only reliable source that has been found, and this report only comes out every 4 years. Additionally, the information contained is not always up-to-date. For example, the 2018 global status report includes information on the helmet wearing rate in Australia from 1997 (World Health Organization, 2018).

Government

We have purposefully avoided modeling or recommending work in countries where we expected working with the government to be especially difficult, such as Afghanistan or the Democratic Republic of Congo.

It could be the case that countries lacking comprehensive road safety legislation, such as Egypt, may be more difficult to make progress in for an unknown reason. One instance could be that these governments are in fact difficult to collaborate with on road safety, leading to the current lack of progress in these countries. This is an untested hypothesis, but should be kept in mind when selecting a country to work in.

8.3 Funding

EA funding

Road traffic safety seems like a cause that Effective Altruists would be open to funding.

The best case that can be made for this claim is that Zusha was a GiveWell standout charity (GiveWell, n.d. a). Zusha! Road Safety Campaign is an initiative by Georgetown University that distributes stickers to public service vehicles, primarily buses, that inform passengers of road traffic safety risks and encourage them to speak up and urge drivers to drive more safely if they are speeding, for example.

Zusha received $70,071 in 2020, $112,478 in 2019, and $109,328 in 2018 from money moved by GiveWell (GiveWell, n.d. b).[14]

Non-EA funding

Bloomberg Philanthropies and FIA Foundation are the biggest funders in the space.

Bloomberg has committed an additional $240 million of funding for road traffic safety from 2020-2025. This almost doubles the amount of funding they have contributed in the space so far from around 2010, which totals $260 million. They seem like they would be especially interested in funding advocacy on speed limits, as in their announcement of the additional funding they state the following: "Speed is the most critical risk factor, but there has been little progress on speed management" (Bloomberg Philanthropies, 2020), They are focused on work in 15 countries: Argentina, Bangladesh, Brazil, Colombia, Ecuador, Ethiopia, Ghana, India, Malaysia, Mexico, Uganda, and Vietnam.

FIA Foundation spends approximately $7 million each year on road traffic safety (Bella Dinh-Zarr, 2013). FIA Foundation funds work similar to that which this new organization will be working on. They have funded the following organizations in the past: AIP Foundation, Amend, Fundación Gonzalo Rodríguez, EASST, and local automobile clubs, all of which have worked on advocacy for new or improved legislation at some point.

Open Philanthropy also reports that "government aid agencies (such as USAID or the UK's DFID [now FCDO]) and development banks, such as the World Bank, support some work on road safety as well" (Open Philanthropy, 2013), but it is not clear how much they contribute.

Focusing on the policy work of existing organizations in the road traffic safety space, they have some interesting funders from which this new organization may be able to also receive support. For example:

- AIP Foundation - UPS Foundation, Global Road Safety Partnership
- Amend - Puma Energy Foundation, FedEx (as part of their corporate social responsibility)
- EASST - European Bank for Reconstruction and Development (EBRD) Shareholders Special Fund

[14] Note that GiveWell didn't remove Zusha as a standout charity, rather they discontinued the "standout charity" designation in October 2021. More information about this can be found at the following link: https://blog.givewell.org/2021/10/05/discontinuing-standout-charity-designation/

Please note that this is not a comprehensive list of non-EA funding.

8.4 Scale of the problem

Our cost-effectiveness analyses currently focus on implementation in one example country. However, as many countries are yet to align with best practice on road safety legislation, there is scope for expanding to other countries, potentially significantly increasing impact.

Our geographic assessment identified 42 other countries where speed limits in urban areas are currently above 50 km/h, with 25 of these having an impact ceiling of over 10,000 avertable DALYs, and 8 of these with an impact ceiling of over 100,000. Therefore, there seems to be a significant amount of further work to be done on this issue.

For seat belt use, our geographic assessment identified 21 other countries where rear-seat passengers are currently not required to wear seat belts. 5 of these have an impact ceiling of over 10,000 annual avertable DALYs, though none with an impact ceiling of over 100,000 aside from Egypt. Our geographic assessment also identified 7 other countries that are completely lacking any seat belt regulation, with 5 of these having an impact ceiling of over 10,000 annual avertable DALYs, and 1 having an impact ceiling of over 100,000 (though this is Afghanistan, in which it would currently be very difficult to work). Therefore, there is some further work to be done on this issue, but it seems like speed limits are more scalable.

8.5 Neglectedness

Work in this space is quite neglected. Although there are quite a few organizations operating in this space, their work is spread across the 5 risk areas as well as projects like road design and enforcement.

As noted in our geographic assessment, the work of Bloomberg Philanthropies in Argentina, Bangladesh, Brazil, China, Colombia, Ecuador, Ethiopia, Ghana, India, Malaysia, Mexico, Philippines, Tanzania, Uganda, and Vietnam and the work of AIP Foundation in Vietnam and Thailand is most relevant as they focus on the same risk areas that we recommend a new organization work on.

8.6 Externalities

There will likely be other positive social outcomes such as life expectancy, life satisfaction, education, child mortality, and others due to the economic impacts of this intervention: money will no longer be lost due to road traffic injuries and deaths and so can be redirected to other things. Note that this is not unique to road traffic safety; it would be the case with any public health issue.

There is some risk in interventions that increase the cost of car use relative to the cost of motorcycle use. Such interventions could lead to increased mortality if road users switch from cars to motorcycles in countries where appropriate motorcycle legislation is not present.

8.7 Macro-level considerations

Why are governments not making these policy changes themselves?

There are no countries completely lacking road traffic safety legislation (World Health Organization, 2018), it's just that most countries do not have comprehensive legislation that follows all of the best practice recommendations of the World Health Organization. This is partly because the World Health Organization's definition of best practice legislation evolves over time. A country that previously met the standards for comprehensive legislation may fall short in current global status reports due only to changing recommendations and not any change in their legislation for the worse (World Health Organization, 2018; World Health Organization, 2015b).

It could also be the case that once legislation exists in some form, governments are less compelled to further improve upon it as they are constantly juggling many different public health issues. As a result, what they may see as small changes to legislation are under prioritized.

In the case of some legislation - in particular, child restraint laws - it may just be the case that this sort of law-making lags behind other risk areas across the world. So, we may expect some countries to not yet have child restraint legislation if they have only recently made progress in other risk areas. For example, in the UK, seat belt legislation was introduced in 1983 (BBC, 1983) but child restraint laws were lacking until 2006 (Mockett, 2017).

It may also be the case that road traffic safety policy is politically unpopular, especially as the enforcement methods are likely to be unwelcome - for example, citizens may dislike speed cameras or speed bumps.

There is also some concern, raised by experts, that traffic policing can lead to corruption (though we have attempted to select countries where this is less likely to be the case).

Is there reason to think that these policies will have no effect in the long run?

There is little evidence that looks at the long-term impact of road traffic safety legislation, but the evidence that could be found positively updated us.

For example, in Georgia, although front seat belt use did spike immediately at 95% following policy change, use stabilized at around 70% 8 years after the legislation was amended (EASST, 2019a). That is, the effect does decrease in the long run, but not to no effect. You can see more evidence of a similar effect in Annex 2. To try to capture this stabilization when modeling the cost-effectiveness of these policy changes, we used the stabilized usage rate (eg., 70% for seat belt use in Georgia) instead of the spiked usage rate where available.

9 Conclusion

Overall, our view is that policy work to improve or introduce road traffic safety legislation is an idea worth recommending to future charity founders. In particular, we recommend interventions across two risk areas:

1. Reducing existing speed limits to 50 km/h in urban areas in countries where speed limits currently exceed this limit
2. For seat belt use, we recommend both improving existing legislation and introducing new legislation
    a. Existing legislation can be improved upon in countries where it is currently only mandated to wear seat belts as the driver and front seat passenger. This requirement would be extended to rear-seat passengers
    b. New legislation would introduce regulations mandating that all occupants must wear a seat belt

Annex 1 - Case Studies

Summary

- 40/84 successes - 47.62% success rate
    - Success takes 2.6 years on average (excluding length of Bloomberg campaigns as unknown)
- 42/84 still in progress
    - Campaigns that are still in progress have been running for an average of 3.9 years (excluding length of Bloomberg campaigns as unknown)
- 2/84 defunct
    - Amend's campaign in Malawi appears to be defunct after no success in 3 years
    - Bloomberg's work in Egypt appears to be defunct after no success in 4 years (they worked in Egypt in Phase 1 of their campaign in 2010-14, but have not reported seeing success there and have not worked in Egypt in any of the other phases)

AIP foundation

Vietnam

Helmets - new law - success in 8 years (1999-2007)

- 1999 - Started work.
- 2000-2002 - Measuring heads in Vietnam to create the world's first "tropical" helmet. By 2002, their helmet plant, Protec, was operational and soon established itself as a producer of quality helmets.
- 2002-2006 - "Helmets for kids" educational outreach program, which also handed out helmets to kids.
- 2006 - National TV campaign "Wear a helmet, there are no excuses" aired.
- 2007 - The Vietnamese government passed a universal helmet law.
- 2008 - Helmet law amended to clarify that helmets must be appropriately fastened to avoid a fine.
- 2009-present - Working to address 2 remaining issues in helmet use:
    - Quality standard helmets are still not the norm.
    - Child helmet-wearing rate is still low.

(Goldman, 2017)

Seat belts (improving law) and child restraints (new law) - still in progress (2019-present)

- 2019 - Launch event was held during the 5th United Nations Global Road Safety Week, attended by 800 primary school students and teachers.
    - Following the kick-off ceremony, over 70 parents were educated on the importance of using seat belts and child car seats at a workshop held at the school. Professor Le Huy Tri, Vice President of the Road Safety Research Center and the People's Police Academy, supported the workshop's organization. Parents learned how to use and install car seats, as well as other information and tips to stay safe when transporting children by car.
- 2019-present - facilitating parent training workshops and government advocacy; running a public awareness campaign on social media; and installing a series of billboards in busy traffic areas around Hanoi. The campaign will reach an estimated 80,000 people.

(AIP Foundation, 2019a)

Speed limits - improved law - success in 2 years (2018-2020)

- 2018 - Grant received to start this project.
- 2020 - Two pieces of legislation were adopted in Vietnam setting up the legal framework for safe school zones: a circular 31/2019 allows removal of fixed speed limits nationally, with provinces able to set lower speed limits during peak hours when students commute to-and-from school.

(BMJ, 2019; AIP Foundation, 2019b)

Thailand

Speed limits - improving law - still in progress (2015-present)

- 2015 - Attempts to amend national speed legislation (reducing speed limits from 80 km/h to 50 km/h) were unsuccessful.
- 2015-present - Focus shifted from changing the national legislation to empowering and encouraging provinces to use the provision in the law to set their own speed limits. In 2017, guidelines were also provided for local governments to set appropriate speed limits.
    - By September 2018, half of the 76 provinces had set urban speed limits not exceeding 50 km/h.

(World Health Organization, 2018)

Cambodia

Helmets - improved law - success in 3 years (2011-2014)

- 2011 - Draft helmet law released, which excluded passengers (such that they wouldn't be required by law to wear helmets).
- 2013 - In response to research findings that 98% of the public was in support of a passenger helmet law, AIP Foundation then submitted a Joint Statement to the Minister of Transport in 2013 appealing for the law to be passed to include passengers.
- May 2014 - AIP Foundation presented a study to the Government demonstrating that 561 lives could be saved, 10,572 head injuries prevented, and USD 98,618,422 could be saved by 2020, if the law was passed in 2014.
- December 2014 - Helmet law passed (requiring drivers and passengers to wear helmets).
- 2015-present:
    - Providing helmets and road safety education at schools.
    - Disseminating campaign messages through mass media, street-based, and commune-based behavior change communications.
    - Enhancing the societal commitment to improving passenger helmet enforcement.
    - Somewhat shifted focus onto occupational safety, distracted driving, and driver skills.

(FIA Foundation, n.d. a)

Myanmar

Helmets - improving law - still in progress (2018-present)

- 2018 - AIP Foundation held its first ever helmet handover ceremony at School No. 19 at Aung Myae Thar San Township, in the Mandalay region of Myanmar, introducing the first in a series of helmet donations to students and teachers across the Mandalay region. These donations follow shortly after a series of teacher trainings wherein 100 teachers from four target schools were equipped with basic road safety knowledge, correct helmet use demonstrations, promotional techniques, and suggestions for class lessons.
- 2019-2020 - Following the success of AIP Foundation's Safety Delivered program in Myanmar in 2018, the program began Phase II in partnership with the Mandalay Region Education Office, supported by the UPS Foundation, to deliver school-based helmet safety programs between April 2019 and December 2020. Three target schools have been selected for program implementation.

    - Key activities will include conducting training sessions for all school teachers on helmet fitting and proper helmet use by children, providing 3,000 helmets to students and teachers over the two-year program period, leading helmet handover ceremonies, and conducting research for pre- and post-intervention analysis.
- 2020-present:
    - Providing helmets and road safety education at schools.
    - Enhancing the societal commitment to improving passenger helmet enforcement.
    - Partnering with key stakeholders to advocate for policy changes that improve helmet standards nationwide.

(AIP Foundation, 2018; AIP Foundation, 2019c; AIP Foundation, n.d.)

EASST

Georgia

Seat belts - improved law - success in 4 years (2007-2011)

- 2007 - The Partnership for Road Safety launched their advocacy campaign to increase seat belt use in Georgia.
- 2007-2011 - building effective coalitions between public and private actors to contribute to legislation.
- 2011 - The Partnership for Road Safety (PfRS) spearheaded efforts to improve seat belt legislation to include the mandatory use of seat belts on motorways and other major roads. Through careful research, building a network of support that extended to some of the biggest businesses in the country as well as other local NGOs, and delivering targeted national media campaigns, PfRS was able to get the issue onto the government's agenda. They organized high-level meetings presenting to ministers and other key decision-makers the social and economic costs of not using seat belts, and established a working group to draft the legislation. As a result of these efforts, seat belt use in the front seat became obligatory on all national roads.

(EASST, 2016)

Child restraints - improved law - success in 2 years (2018-2020)

- 2018 - Partnership for Road Safety partnered with FIA member the Georgian Automobile Sport Federation to promote the use of child restraint systems in Georgia and advocate for legislation changes to make their use mandatory.

- 2020 - The Georgian parliament amended the law to include mandatory use of child restraint systems in cars for all children up to the age of 12, meeting European standards (the previous age limit was three years), and removing an exception that allowed people to carry children on their laps.

(EASST, 2018; FIA Foundation, 2020)

Azerbaijan

Child restraints - new law - still in progress (2014-present)

- 2014 - Project launched
    - Hayat conducted an initial survey among families with children under 12 years old and found that only 17% used child restraints in their vehicles. It was also found that the law on child restraints in Azerbaijan contained no specific details relating to the positioning of restraints, the height and age of the child, or the type of vehicle.
    - Hayat began conducting awareness-raising events, reaching 20 local schools as well as hospitals and maternity wards. Posters and booklets were widely distributed among young families containing guidance, which were accompanied by online and radio messages to the general public.
    - In close cooperation with the State Traffic Police Department, Hayat sought to clarify and amend the existing law on use of child restraints. They held a key meeting with MPs and the Chairman of the Parliamentary Social Policy Committee, which led to the drafting of an action plan to provide greater clarity in the law and increase controls over enforcement.
- 2016 - EASST worked with FIA mobility club the National Automobile Club of Azerbaijan (AMAK) to promote road safety in the country. AMAK has taken up the mantle of promoting child safety by supporting and continuing the work of Hayat on child restraints.
- 2017-present - awareness raising and advocacy.

(EASST, 2019c)

Kyrgyzstan

Child restraints - new law - still in progress (2019-present)

- 2019 - Campaign launched
    - In article from 2019: "next year new legislation will come into force making the use of child car seats mandatory for all children under 12 years old."

    - Could not find evidence that this law was ever passed in 2020, so assume this campaign is still ongoing as EASST's website talks about policy work in Kyrgyzstan.

(EASST, 2019b)

Mongolia

Child restraints - new law - success in 2 years (2016-2018)

- 2016 - The #UBeSAFE road safety awareness campaign launched
    - #UBeSAFE is a project initiated by Global Shapers Ulaanbaatar in collaboration with the Asian Development Bank and partnership with the Ministry of Finance, the Ministry of Road and Transportation, and the Traffic Police of Mongolia. The project aims to improve road safety management and operations to enhance the quality of life and support sustainable socio-economic development in Mongolia. A carefully orchestrated media campaign reached 1 million people and is expected to improve road safety and decrease poor driving behavior.
- 2018 - Law with requirement of having child safety car seats for children under 10 years of age came into effect as of November 1, 2018.

(Baasankhuu, 2017; Mongolia - EASST, 2019)

Fundación Gonzalo Rodríguez

Chile

Child restraints - improved law - success in 4 years (2012-2016)

- 2012 - The Gonzalo Rodríguez Foundation began its work in Chile in 2012, in conjunction with the National Commission for Traffic Safety (CONASET), with whom work meetings were generated to outline a strategy focused on child road safety in Chile. This strategy included a series of training sessions for both the CONASET technical team and the Chilean police, as well as Checkpoints for Child Restraint Systems in different Shopping Centers in Santiago, seeking to put the issue on the agenda in Santiago, Chile.
    - These trainings were essential for CONASET to begin internal work to address a public policy for child road safety, always accompanied by the technical work of the Foundation.
- 2014 - A work agreement was signed with CONASET for the realization of technical cooperation, with the aim of generating training in child passenger safety as well as development and exchange of investigations related to child road safety and the generation of checkpoints for CRS.

- 2016 - Amended legislation expanded the requirement for child seats up to 9 years of age (or with a height of 135 centimeters and weight of 33 kilograms), increased the age in which children were prohibited from sitting in the front seat to 12, and implemented a comprehensive training, communication, and oversight plan.

(FIA Foundation, n.d. b) - Note that information was taken from the linked report, which is written in Spanish

Uruguay

Child restraints - improved law - success in 5 years (2007-2012)

- 2007 - EDU-CAR Road Safety Program for Children was started by GRMF in 2007.
- 2012 - After several years of intense work in conjunction with the National Road Safety Unit, departmental municipalities, and inspection bodies, among others, in 2012 the Law of Various Standards on Road Safety was approved, which included the mandatory use of CRS in all private vehicles for the transfer of children up to 12 years old or 1.50 meters tall.

(FIA Foundation, n.d. b) - Note that information was taken from the linked report, which is written in Spanish

Argentina

Child restraints - improved law - success in 2 years

- 2016 - Started working in Argentina
- 2018 - In January 2018, President Macri's government raised the age limit of child restraint use in the rest of the country to 10 years (Buenos Aires had already extended the age limit to 12, setting a size limit lower than 150 cm and no longer allowing children under 12 to travel in the front seat of the car).

(FIA Foundation, n.d. b) - Note that information was taken from the linked report, which is written in Spanish

FIA Foundation

Mexico

Child restraints - improved law - success in 1 year (2016-2017)

- 2016 - Toolkit launched.
- 2017 - Mexico adopted child restraint legislation following an advocacy campaign by their auto clubs using the FIA's "Toolkit for child safety in cars."

(FIA Foundation: Natalie Draisin, Avi Silverman; and Fundación Gonzalo Rodriguez: Florencia González, Florencia Lambrosquini, Mathías Silva, and Federico Zugarramurdi, 2018)

UAE

Child restraints - improved law - success in 1 year (2016-2017)

- 2016 - Toolkit launched.
- 2017 - UAE adopted child restraint legislation following an advocacy campaign by their auto clubs using the FIA's "Toolkit for child safety in cars."

(FIA Foundation: Natalie Draisin, Avi Silverman; and Fundación Gonzalo Rodriguez: Florencia González, Florencia Lambrosquini, Mathías Silva, and Federico Zugarramurdi, 2018)

Paraguay

Child restraints - improving law - still in progress (2016-present)

- 2016 - Toolkit launched.
    - No mention of this project from FIA foundation since.

(FIA Foundation: Natalie Draisin, Avi Silverman; and Fundación Gonzalo Rodriguez: Florencia González, Florencia Lambrosquini, Mathías Silva, and Federico Zugarramurdi, 2018)

Sri Lanka

Child restraints - new law - success in 1 year (2020)

- January 2020 - The AAC's campaign "Is Your Child Safe in Your Car?" was launched with a press conference hosted by AAC President Dhammika Attygalle alongside Asia region racing champion and Goodwill Ambassador of the Club program Dilantha Malagamuwa. The event was attended by media and major road safety stakeholders including Anton De Mens, Chairman of National Council for Road Safety, and SSP Indika Hapugoda, Director of Traffic in the Department of Police, to launch the campaign, which attracted attention from key regional media.
    - The campaign targeted key decision-makers as well as used an integrated media advocacy campaign across TV, radio, publications, and social media to build public support.
        - Radio communication from AAC drew a comparison between COVID-19 and the road safety crisis and asked the public if they knew that, globally, 186,000 children and 1.3 million people die

in road crashes every year. The message highlighted that if people can act responsibly during the COVID -19 and follow safety rules set by the government, they should pay equal attention to road safety and obeying safety rules when on the road.

- April 2020 - The Sri Lankan Government announced new policies for compulsory Child Restraint Systems (CRS) to save lives to be introduced by the end of 2020.

(FIA Foundation, n.d. c)

Amend

Côte d'Ivoire, Malawi, Mozambique, Namibia, Senegal, Tanzania, and Zambia

Speed limits - improved law - 6/7 successes in 2 years

- 2017 - Project launched
- 2019 - Six countries (Zambia, Namibia, Côte d'Ivoire, Mozambique, Senegal, and Tanzania) had legal changes lowering speed limits around schools to 30 km/h, with one country instituting a new nationwide 30 km/h school zone speed limit (Zambia) and a city (Windhoek, Namibia) instituting a citywide 30 km/h school zone limit.
    - Work in Malawi extended to 2020, but it seems as though they were unsuccessful.

(Amend, 2019)

Bloomberg - 2010-2019

Information regarding the specifics and timelines of Bloomberg's many campaigns and resulting policy changes were time-prohibitive to obtain, as their campaign information is relatively vague and dispersed. It may not be possible to locate it at all.

However, more general information was found (Bloomberg Philanthropies, 2020):

- Worked in 45 cities/localities. 12 of them changed their laws or policies to reduce at least one road safety risk factor (~27% success rate).
- Worked in 13 countries. 10 of them (China, Russia, Thailand, the Philippines, Cambodia, Vietnam, Kenya, Brazil, Turkey, and India) changed their laws or policies to reduce at least one road safety risk factor (~77% success rate).

Annex 2 - How long does impact last?

Vietnam - new helmet law

- 2007 - law passed - "Helmet-wearing rate increased significantly from as low as 6% on city roads to more than 90%" (Goldman, 2017).
- 2008 - WHO report on the global status of road traffic safety - estimated 85% helmet wearing rate (World Health Organization, 2008).
- 2013
    - Data from Helmet observation in Ha Noi, BacNinh, Quang Ninh, Da Nang, Vinh Phuc, and Ho Chi Minh city - reported 96% Drivers, 83% Passengers helmet-wearing rate.
    - Data from Hanoi School of Public Health, helmet observations in select provinces - reported 81% Drivers, 60% Passengers helmet-wearing rate.
      (World Health Organization, 2015b)

Georgia - improved seat belt law

- 2011 - law passed - "In the first six months, seat-belt use in the front seat increased from just 1 per cent to over 95 per cent" (EASST, 2019a).
- 2013 - WHO report on the global status of road traffic safety - reported 80% Drivers, 80% Front seats seat belt wearing rate (World Health Organization, 2015b).
- 2019 - "seat-belt use in the front seat [has] now stabilized to around 70 per cent" (EASST, 2019a).

References

AIP Foundation (2018). Available at: https://www.aip-foundation.org/aip-foundation-hosts-first-helmet-handover-ceremony-at-mandalay-primary-school/ (accessed 16 December 2021).

AIP Foundation (2019a). Available at: https://www.aip-foundation.org/aa-vietnam-and-aip-foundation-bring-child-car-safety-training-to-parents-in-hanoi/ (accessed 16 December 2021).

AIP Foundation (2019b). Available at: https://www.aip-foundation.org/circular-31-milestone-of-change-occurs-in-vietnam-with-removal-of-fixed-speed-limits/ (accessed 16 December 2021).

AIP Foundation (2019c). Available at: https://www.aip-foundation.org/three-target-schools-in-mandalay-region-selected-for-safety-delivered-phase-ii-2019-2020/ (accessed 16 December 2021).

AIP Foundation (n.d.). Available at: https://www.aip-foundation.org/what-we-do/where-we-work/vietnam (accessed 16 December 2021).

Amend (2019) Three-Year Child Road Safety Project in Africa Final Execution Report. Available at: https://drive.google.com/file/d/1VGU6vdawGFJ_S6dtkNcHN0fY40gdxRV-/view (accessed 6 January 2022)

Azerbaijan - EASST (2019). Available at: https://www.easst.co.uk/country/azerbaijan/ (accessed 16 December 2021).

Baasankhuu N (2017) *#UBeSafe Road Safety Campaign*. Available at: https://events.development.asia/system/files/materials/2017/05/201705-ubesafe-road-safety-campaign.pdf.

BBC (1983) British drivers ordered to belt up, 1983. 24 January. BBC. Available at: https://www.bbc.co.uk/archive/british-drivers-face-new-seatbelt-law-1983/zhwyscw#:~:text=The%20wearing%20of%20seatbelts%20for,force%20on%2031%20January%201983.&text=The%20debate%20about%20making%20front,attempts%20to%20make%20it%20law.

Bella Dinh-Zarr T (2013) A conversation with T. Bella Dinh-Zarr on August 2, 2013 about developing world road safety. Available at: https://files.givewell.org/files/conversations/FIA%20Foundation%209-3-13%20(public).pdf.

Bloomberg Philanthropies (2020) Bloomberg Philanthropies commits additional $240 million to prevent global road traffic deaths. Available at: https://www.bloomberg.org/press/bloomberg-philanthropies-commits-additi

onal-240-million-to-prevent-global-road-traffic-deaths/ (accessed 16 December 2021).

BMJ (2019) Slow Zones, Safe Zones in Vietnam - Injury Prevention: Editor's Blog. Available at: https://blogs.bmj.com/injury-prevention/2019/08/28/slow-zones-safe-zones-in-vietnam/ (accessed 16 December 2021).

EASST (2016) Case study from Georgia: increasing seat belt use. Available at: https://www.easst.co.uk/case-study-from-georgia-increasing-seat-belt-use/ (accessed 16 December 2021).

EASST (2018) Promoting the use of car-seats to cut road risk for children in Georgia. Available at: https://www.easst.co.uk/promoting-the-use-of-car-seats-to-cut-road-risk-for-children-in-georgia/ (accessed 16 December 2021).

EASST (2019a) *10 Years of Saving Lives: Road Safety Capacity Building and Development*. Available at: https://www.easst.co.uk/wp-content/uploads/2019/04/EASST-10-year-impact-report-web-1.pdf.

EASST (2019b) Campaign leads to increases in seat belt wearing rates in Bishkek. Available at: https://www.easst.co.uk/campaign-leads-to-huge-increases-in-seat-belt-wearing-rates-in-bishkek/ (accessed 16 December 2021).

EASST (2019c) Then and Now: increasing the use of child restraint systems in Azerbaijan. Available at: https://www.easst.co.uk/then-and-now-increasing-the-use-of-child-restraint-systems-in-azerbaijan/ (accessed 16 December 2021).

Elvik, Christensen, and Amundsen (2004) *Speed and road accidents: an evaluation of the Power Model*. Available at: https://www.toi.no/publications/speed-and-road-accidents-an-evaluation-of-the-power-model-article17882-29.html (accessed 16 December 2021).

Elvik et al. (2009) Vehicle Design and Protective Devices. In: *The Handbook of Road Safety Measures*. Emerald Group Publishing Limited, pp. 543–731. Available at: https://www.emerald.com/insight/publication/doi/10.1108/9781848552517 (accessed 16 December 2021).

FIA Foundation (2020) Annual report 2020. Available at: https://www.fiafoundation.org/about-us/annual-report-2020 (accessed 16 December 2021).

FIA Foundation (n.d. a) New law, success for Cambodia helmet campaign. Available at: https://www.fiafoundation.org/blog/2014/december/new-law-success-for-ca

mbodia-helmet-campaign (accessed 16 December 2021).

FIA Foundation (n.d. b) Learning from Chile's Child Restraint System policy success. Available at: https://www.fiafoundation.org/blog/2021/march/learning-from-chile-s-child-restraint-system-policy-success (accessed 16 December 2021)

FIA Foundation (n.d. c) Auto club leads new child safety legislation in Sri Lanka. Available at: https://www.fiafoundation.org/blog/2020/april/auto-club-leads-new-child-safety-legislation-in-sri-lanka (accessed 16 December 2021)..

FIA Foundation: Natalie Draisin, Avi Silverman; and Fundación Gonzalo Rodriguez: Florencia González, Florencia Lambrosquini, Mathías Silva, and Federico Zugarramurdi (2018) *Streets for Life: Safe and Healthy Journeys for the Children of Latin America and the Caribbean*. Available at: https://www.fiafoundation.org/media/596964/streets-for-life-en-print.pdf.

GBD Results Tool (n.d.). Available at: https://gbd2017.healthdata.org/gbd-search?params=gbd-api-2017-permalink/a87fc19b9c86749eab0a954ac6a14c1d (accessed 16 December 2021).

GiveWell (2019) Steady-state Fortify Health iron fortification CEA [June 2019]. Available at: https://docs.google.com/spreadsheets/d/1epyGHcuM9A7YjtddVpEPByBs_lxFY5fh1FQbVLlPneA/edit#gid=171561146 (accessed 6 January 2022)

GiveWell (n.d. a) Georgetown university initiative on innovation, development, and evaluation — zusha! Road Safety Campaign - June 2018 version. Available at: https://www.givewell.org/charities/zusha-road-safety-campaign-June-2018-version (accessed 16 December 2021).

GiveWell (n.d. b) GiveWell's impact. Available at: https://www.givewell.org/about/impact (accessed 16 December 2021).

Goldman L (2017) *Head First: A Case Study of Vietnam's Motorcycle Helmet Campaign*. Available at: https://www.fiafoundation.org/media/461104/aipf-10-year-helmet-law-report-final_r5_single.pdf.

Harris GT and Olukoga IA (2005) A cost benefit analysis of an enhanced seat belt enforcement program in South Africa. *Injury prevention: journal of the International Society for Child and Adolescent Injury Prevention* 11(2): 102–105. Available at: https://www.researchgate.net/publication/7931510_A_cost_benefit_analysis_of_an_enhanced_seat_belt_enforcement_program_in_South_Africa

Mockett, A. (2017) The history of the child car seat, OSV. Available at: https://www.osv.ltd.uk/the-history-of-the-car-seat/ (Accessed: 5 January

2022).
Mongolia - EASST (2019). Available at: https://www.easst.co.uk/country/mongolia/ (accessed 16 December 2021).
Open Philanthropy (2013) Traffic safety in low- and middle-income countries. Available at: https://www.openphilanthropy.org/research/cause-reports/traffic-safety (accessed 16 December 2021).
Seat-belts and child restraints (n.d.). Available at: https://www.who.int/roadsafety/publications/Seat-beltsManual_EN.pdf (accessed 23 December 2021).
The Decision Lab (2021) The COM-B Model for Behavior Change. Available at: https://thedecisionlab.com/reference-guide/organizational-behavior/the-com-b-model-for-behavior-change/ (accessed 6 January 2022)
World Bank (n.d.) Cairo Traffic Congestion Study - Final Report. Available at: https://documents1.worldbank.org/curated/en/495131468038082604/pdf/886540v20ESW0w00n0Study0Long0Report.pdf.
World Health Organization (2008) *Global Status Report on Road Safety: Time For Action*. Available at: http://apps.who.int/iris/bitstream/handle/10665/44122/9789241563840_eng.pdf.
World Health Organization (2011) *Egypt: a national decade of action for road safety 2011-2020*. Available at: https://apps.who.int/iris/bitstream/handle/10665/116693/dsa1229.pdf?sequence=1.
World Health Organization (2015a) *Executive Summary - Global Status Report on Road Safety, 2015*. Available at: https://www.who.int/violence_injury_prevention/road_safety_status/2015/Executive_summary_GSRRS2015.pdf.
World Health Organization (2015b) *Global Status Report on Road Safety 2015*. Genève, Switzerland: World Health Organization. Available at: https://www.afro.who.int/publications/global-status-report-road-safety-2015
World Health Organization (208) *Global Status Report on Road Safety 2018*. Genève, Switzerland: World Health Organization. Available at: https://www.who.int/publications/i/item/9789241565684