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Original Research

Evaluation of the five-year Bloomberg Philanthropies Global Road Safety Program in the Russian Federation[☆]



S. Gupta^{a,*}, N. Paichadze^{b,1}, E. Gritsenko^{c,2}, V. Klyavin^{d,3},
E. Yurasova^{e,4}, A.A. Hyder^{f,5}

^a Johns Hopkins International Injury Research Unit, Department of International Health, Johns Hopkins Bloomberg School of Public Health, 615 North Wolfe Street, Baltimore, USA

^b Johns Hopkins International Injury Research Unit, Department of International Health, Johns Hopkins Bloomberg School of Public Health, 615 North Wolfe Street, Suite E-8636, Baltimore, USA

^c Department of Highway Transportation, Ivanovo State Polytechnic University, 20 8 March Street, Ivanovo 153037, Russian Federation

^d Department of Transportation Management, Lipetsk State Technical University, 30 Moskovskaya Street, Lipetsk 398600, Russian Federation

^e WHO Office in the Russian Federation, 9 Leontyevsky pereulok, Moscow 125009, Russian Federation

^f Johns Hopkins International Injury Research Unit, Department of International Health, Johns Hopkins Bloomberg School of Public Health, 615 North Wolfe Street, Suite E-8132, Baltimore, USA

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ABSTRACT

Road traffic injuries are a leading cause of morbidity and mortality in the world. In Russia, a road safety program was implemented in Lipetskaya and Ivanovskaya oblasts (regions) as part of a 10-country effort funded by Bloomberg Philanthropies. The program was focused on increasing seat belt and child restraint use and reducing speeding. The primary goals of this monitoring and evaluation study are to assess trends in seat belt use, child restraint use, and speed compliance in the two oblasts over the 5 years and to explore the overall impact of the program on road traffic injury and death rates. Primary data via roadside observations and interviews, and secondary data from official government sources were collected and analyzed for this study.

Our results indicate significant improvements in seat belt wearing and child seat use rates and in prevalence of speeding in both intervention oblasts. The observations were consistent with the results from the roadside interviews. In Lipetskaya, restraint use by all occupants increased from 52.4% (baseline, October 2010) to 77.4% (final round, October 2014) and child

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* Corresponding author. Tel.: +1 443 287 8748.

E-mail addresses: sgupta23@jhu.edu (S. Gupta), npaicha1@jhu.edu (N. Paichadze), gritsenko.lena@yandex.ru (E. Gritsenko), vllk@list.ru (V. Klyavin), yurasovae@who.int (E. Yurasova), ahyder1@jhu.edu (A.A. Hyder).

¹ Tel.: +1 443 287 4758.

² Tel.: +7 903 879 21 17.

³ Tel.: +7 474 245 87 65.

⁴ Tel.: +7 495 787 21 08.

⁵ Tel.: +1 410 955 1253.

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Roadside observation
Roadside interview

restraint use increased from 20.9% to 54.1% during the same period. In Ivanovskaya, restraint use by all occupants increased from 48% (baseline, April 2012) to 88.7% (final round, October 2014) and child restraint use increased from 20.6% to 89.4% during the same period. In Lipetskaya, the overall prevalence of speeding (vehicles driving above speed limit) declined from 47.0% (baseline, July 2011) to 30.4% (final round, October 2014) and a similar pattern was observed in Ivanovskaya where the prevalence of speeding decreased from 54.6% (baseline, March 2012) to 46.6% (final round, October 2014). Through 2010–2014, the road traffic crash and injury rates per 100,000 population decreased in Lipetskaya oblast (191.5 and 246.9 in 2010 and 170.4 and 208.6 in 2014, respectively) and slightly increased in Ivanovskaya oblast (184.4 and 236.0 in 2010 and 186.7 and 243.4 in 2014, respectively).

These road safety improvements are associated with the program that enabled a combined focus on policy reform, legislation, enforcement, advocacy, education, and data collection and use. However, the existence of other road safety efforts, lack of data from comparable regions, and unavailability of risk factor-specific data make it difficult to attribute these changes to the program.

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Introduction

Globally, 1.2 million deaths and 20–50 million injuries are caused by road traffic crashes each year.¹ Though the European Region has the lowest road traffic fatality rate in the world, there is a significant disparity between the countries in the region. In 2010, the Russian Federation had a road traffic injury (RTI) rate of 199.1 per 100,000 population and a road traffic death rate of 18.6 per 100,000 population—the third highest road traffic mortality in the region and among the world's 10 countries with the highest number of road traffic deaths.^{1,2} According to the 2013 Global Burden of Disease study, 2.29% of total disability adjusted life years were attributable to RTIs making it the 9th leading cause of disability adjusted life years in Russia.³ The Ministry of Internal Affairs of Russia estimated that 2.5% of the gross domestic product (approximately \$26 billion) was lost due to RTIs in 2005.⁴

Recognizing this high burden, the Russian government implemented the first Federal Target Road Safety Program from 2006 to 2012 with a goal to reduce RTIs by 33% compared with 2004 rates. This multisectoral program involved multiple ministries focusing on modernization of road infrastructure, increases in penalties for traffic violations, strengthening

drinking driving and other road safety laws, law enforcement, traffic safety promotion in media and schools, social marketing campaigns, and improvement of medical care to victims of RTIs.^{5,6} A second phase of the Federal Target Road Safety Program 2013–2020 was approved in fall 2013.⁷

The Bloomberg Philanthropies Global Road Safety Program was implemented over 5 years from 2010 to 2014 to improve road safety in 10 countries, including Russia. The goal of the program in Russia was to support the government in implementing its national program to prevent RTIs in two administrative districts of the Central Federal Okrug (Area) of Russia: Lipetskaya and Ivanovskaya oblasts (regions) by increasing seat belt and child restraint use and reducing speeding with the potential for dissemination of the project lessons in the Russian Federation in the medium term.⁸

Supported by the Ministry of Internal Affairs and Ministry of Health, the project involved federal, regional, and international partners including the World Health Organization (WHO) which was responsible for legislation review, social marketing campaigns, and support to media; Global Road Safety Partnership (GRSP) supported road traffic police capacity building and the Johns Hopkins International Injury Research Unit (JH-IIRU) was responsible for monitoring and evaluation (M&E) of

Table 1 – Main activities of the Bloomberg Philanthropies Global Road Safety Program in the Russian Federation.

Legislation	Enforcement	Social marketing
<ul style="list-style-type: none"> Review of the Russian road safety legislation on speeding and seatbelt use in 2010 Review and update of the Russian road safety legislation on all five risk factors 2013 	<ul style="list-style-type: none"> Provide international expert support to: <ul style="list-style-type: none"> Assess current enforcement practices Elaborate a strategy to facilitate higher efficiency of enforcement Assist in implementation of effective strategies for road safety in the intervention regions 	<ul style="list-style-type: none"> Social marketing campaigns on speeding, seatbelt, and child restraint use <ul style="list-style-type: none"> TV advertisements Outdoor advertisements Advertisements on public transport Radio advertisements Printed materials Internet advertisements A series of mass PR events

Source: World Health Organization. Practical steps in enhancing road safety: lessons from the Road safety in 10 countries project in the Russian Federation, 2015.

the project in the two intervention regions.⁸ The detailed description of project activities are described elsewhere^{9,10} and we provide a general outline in [Table 1](#).

The goal of this study is to monitor and evaluate the impact of the program in Lipetskaya and Ivanovskaya over the 5 years. The specific objectives are: (1) to assess trends in risk factors (seat belt use, child restraint use, and speeding) in the two oblasts; (2) to present changes in the knowledge, attitudes, and practices (KAP) related to seat belt use and speeding in the two oblasts; and (3) to report trends on road traffic enforcement and outcomes in the two oblasts. Finally, we briefly describe the lessons learned and provide recommendations for the sustainability of the road safety program in Russia and other settings.

Methods

We used a combination of primary and secondary data collection methods in the two intervention oblasts over the 5 years. Primary data were collected using two methods: (1) roadside observation of seat belt use, child restraint use, and speeding; and (2) roadside interviews on the KAP related to the selected risk factors among car occupants. Secondary data were obtained from the public sources of the State Traffic Inspectorate of the Ministry of Interior and the Russian Statistical Yearbook of the Federal Service of State Statistics.¹¹

During the project period, we conducted 15–17 rounds of observations in Lipetskaya and 12–16 rounds of observations in Ivanovskaya with nearly 2 million observations in total ([Table 2](#)).

Observations were conducted and recorded by trained researchers using standardized observation protocols and data recording sheets.¹² Trained data collectors recorded seat belt use among drivers and passengers, child restraint use, and vehicle speeds (using vehicle mounted radar guns) at 18 and 21 locations in Lipetskaya and Ivanovskaya oblasts for each round, respectively. Observations at each location were conducted in 90-minute slots and were limited to daylight hours. Time periods were selected to capture a representative sample of traffic flow over weekdays and weekends^{13,14} ([Table 2](#)).

Trained interviewers in collaboration with the local traffic police also conducted 7–8 rounds of roadside interviews in Lipetskaya and 4–7 rounds of roadside interviews in Ivanovskaya. Police stopped vehicles, explained the survey to drivers and then vehicles were directed to an adjacent off-road stop where interviews were conducted. Roadside interview data collection procedures have been published

elsewhere.^{13,14} A total of 8902 interviews were conducted over the 5 years ([Table 2](#)).

All observational and secondary data were entered into Microsoft Excel spreadsheets; data for roadside interviews were entered into EpiInfo database. All data were exported in Stata 12 (StataCorp, College Park, TX) for analysis. Univariate and bivariate analyses were conducted to estimate the frequencies and percentages of seat belt use by seat position, child restraint use, and prevalence of speeding in both the regions per round. Two-sample z-test (5% significance level) for the difference in proportions¹⁵ was also used to evaluate the change in risk factors and road user behavior between the first (baseline) and all other rounds both for speeding and seat belt use. Odds ratios and corresponding 95% confidence intervals (CI) were calculated using logistic regression models to examine whether seat belt wearing differed significantly between front seat and backseat occupants.¹⁶

The study protocols were approved both by the Institutional Review Boards (ethics committees) at the Johns Hopkins Bloomberg School of Public Health, USA and the Departments of Public Health of Lipetskaya and Ivanovskaya oblasts.

Results

In Lipetskaya oblast, over 17 rounds, seat belt use for all occupants increased from 52.4% in October 2010 (baseline) to 77.4% in October 2014 (final round) (P -value < 0.05) ([Table 3](#)). Rear seat belt use also increased from 7.3% (baseline) to 36.6% (final round) but remained substantially lower compared with seat belt use by drivers and front seat passengers ([Fig. 1A](#)). Combining across all rounds, the odds ratio of wearing seat belts among drivers and front seat passengers was 7.9 times higher (95% CI 7.68–8.14, P -value < 0.05) when compared with rear seat passengers.

In Ivanovskaya oblast, over the period of 15 rounds, seat belt use for all occupants also increased from 48% in April 2011 (baseline) to 88.7% in October 2014 (final round) (P -value < 0.05) ([Table 3](#)). Rear seat belt use increased from 22.1% to 47.1% between baseline and final round but remained low compared with seat belt use by drivers and front seat passengers ([Fig. 1B](#)). Combining across all rounds, the odds ratio of wearing seat belts among drivers and front seat passengers was 10.3 times higher (95% CI 9.99–10.56, P -value < 0.05) when compared with rear seat passengers.

In Ivanovskaya, child restraint use was 20.6% at baseline (April 2011), but improved gradually to 89.4% in the final round (October 2014) (P -value < 0.05) ([Table 3](#)). Child restraint use

Table 2 – Primary data collection in Lipetskaya and Ivanovskaya oblasts, 2010–2014 (N = 1,998,302).

Method: risk factor	Region	
	Lipetskaya oblast	Ivanovskaya oblast
	Number of rounds (sample size)	Number of rounds (sample size)
Observation: seat belt use	17 (575,032)	16 (486,678)
Observation: child restraint use	17 (6378)	16 (6236)
Observation: speeding	15 (462,398)	12 (396,090)
KAP survey: seat belt and child restraint use	8 (4769)	7 (4133)
KAP survey: speeding	7 (4196)	4 (2400)

Table 3 – Change in observed seat belt and child restraint use in Lipetskaya and Ivanovskaya oblasts, 2010–2014 (N = 1,061,710).

Lipetskaya oblast	Baseline (Oct 2010)	Final round (Oct 2014)	Change
All occupants	52.4%	77.3%	24.9% (P < 0.05)
Drivers	55.7%	79.3%	23.6% (P < 0.05)
Front seat passengers	58.2%	81.1%	22.9% (P < 0.05)
Center seat passengers	34.2%	33.3%	(–0.9%) (P = 0.95)
Rear seat passengers	7.3%	36.6%	29.3% (P < 0.05)
Child restraints	20.9%	54.0%	33.1% (P < 0.05)
Ivanovskaya oblast	Baseline (Apr 2011)	Final round (Oct 2014)	Change
All occupants	48.1%	88.7%	40.6% (P < 0.05)
Drivers	52.0%	92.4%	40.4% (P < 0.05)
Front seat passengers	49.9%	93.0%	43.0% (P < 0.05)
Center seat passengers	17.0%	52.1%	35.1% (P < 0.05)
Rear seat passengers	22.1%	47.1%	24.0% (P < 0.05)
Child restraints	20.5%	89.3%	68.8% (P < 0.05)

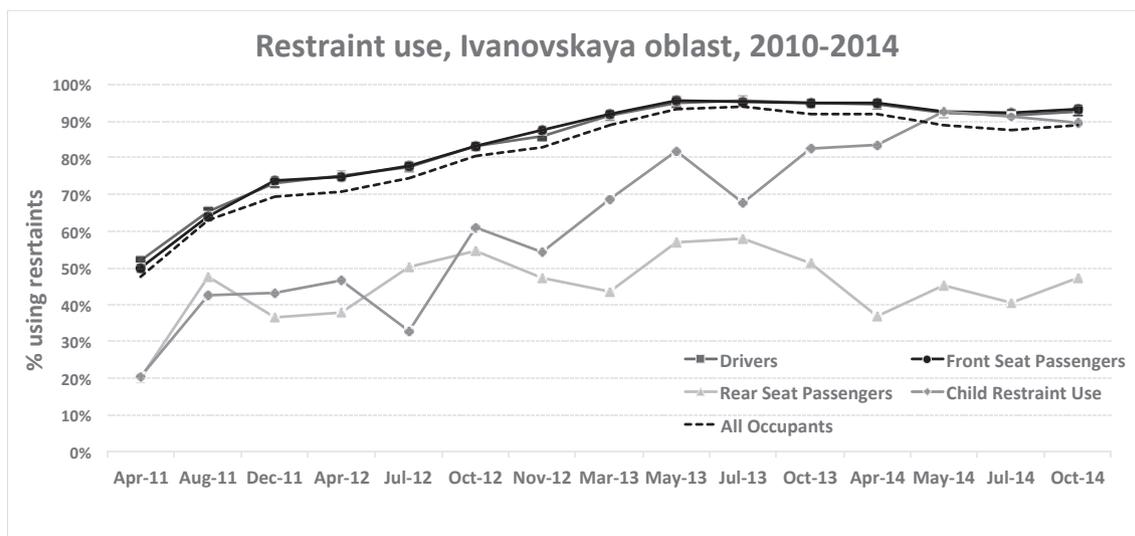
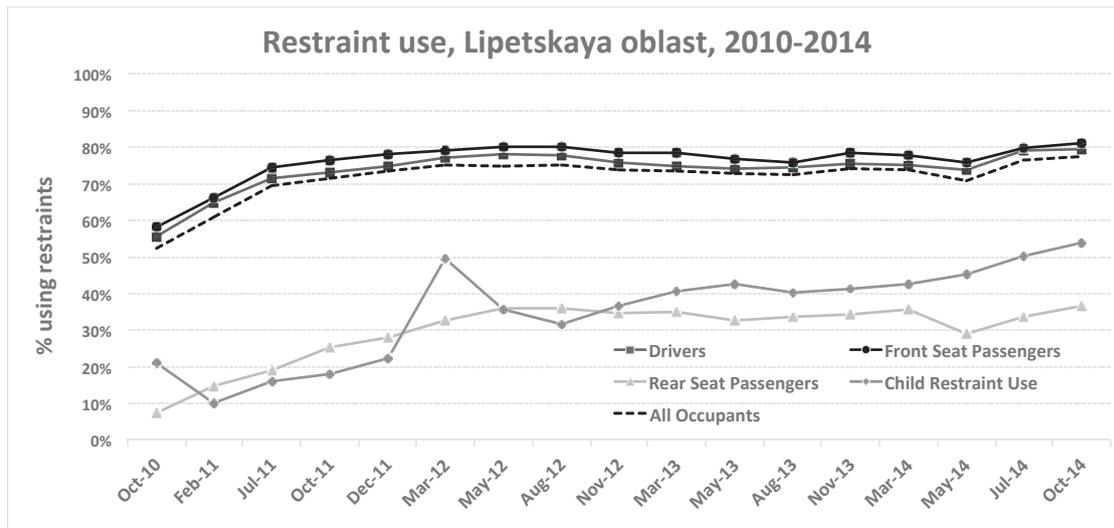


Fig. 1 – A: Trend in observed seat belt and child restraint use rate in Lipetskaya oblast 2010–2014 (575,032). B: Trend in observed seat belt and child restraint use rate in Ivanovskaya oblast 2011–2014 (N = 486,678).

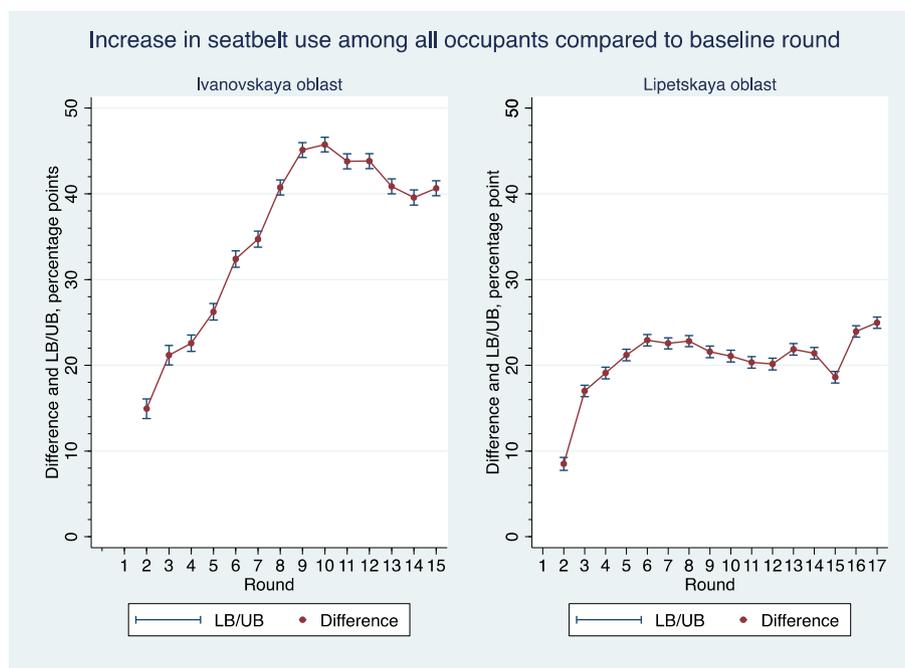


Fig. 2 – Increase in seat belt use among all occupants in Lipetskaya and Ivanovskaya oblasts.

also improved in Lipetskaya oblast, but the increase was relatively smaller, from 20.9% at baseline to 54.1% in the final round (Fig. 1) (P -value < 0.05).

The magnitude of increase in restraint use was higher in Ivanovskaya oblast compared with Lipetskaya oblast. When compared with the baseline, the difference in the proportion of seat belt use was significantly higher for each round (P -value < 0.02) (Fig. 2).

In Lipetskaya oblast, over eight rounds of KAP surveys, the percentage of drivers who self-reported to always wear seat belt remained stable at around 79%. The percentage of surveyed drivers aware of any public education campaigns to encourage seat belt and child restraint use also decreased by 18.2 percentage points. These changes between baseline and final rounds were statistically significant (P -value < 0.05) (Table 4).

In Ivanovskaya oblast, over seven rounds of KAP surveys, the percentage of drivers who self-reported to always wear

seat belt increased only from 80.2% (April, 2011) to 87.6% (October, 2010). The percent of interviewed drivers aware of any public education campaigns to encourage seat belt and child restraint use decreased by 17.7 percentage points. The changes between baseline and final rounds were statistically significant (P -value < 0.05) (Table 4).

The overall prevalence of speeding (vehicles above speed limit) had been declining steadily in both oblasts until fall 2013. In the fall of 2013, considerable increase in the percentage of vehicles speeding was observed in both the regions (Fig. 3). This increase coincided with the implementation of changes in enforcement regulation according to which tickets were not issued for vehicles exceeding the speed limit up to 20 km/h over the limit.¹⁷

In Lipetskaya oblast, the prevalence of observed speeding decreased from 47.0% at baseline (July 2011) to 30.4% in the final round (October 2014). A similar trend was observed in

Table 4 – Responses from the roadside surveys on seat belt use in Lipetskaya and Ivanovskaya oblasts, 2010–2014 (N = 8902).

Lipetskaya oblast	Baseline (Oct 2010)	Final round (Sep 2014)	Change
Number of participants	600	569	
Drivers claim to always wear seat belt	79.0%	79.2%	0.2% ($P = 0.466$)
Are you aware of any public education campaigns to encourage seat belt wearing and use of child restraint?	53.0%	34.8%	(−18.2%) ($P < 0.05$)
Have you heard any messages about consequences of driving without seat belts and using child restraints?	76.5%	34.5%	(−42.0%) ($P < 0.05$)
Ivanovskaya oblast	Baseline (Apr 2011)	Final round (Oct 2014)	Change
Number of participants	551	600	
Drivers claim to always wear seat belt	80.2%	87.7%	7.5% ($P < 0.05$)
Are you aware of any public education campaigns to encourage seat belt wearing and use of child restraint?	51.5%	33.8%	(−17.7%) ($P < 0.05$)
Have you heard any messages about consequences of driving without seat belts and using child restraints?	87.3%	74.5%	(−12.8%) ($P = 0.002$)

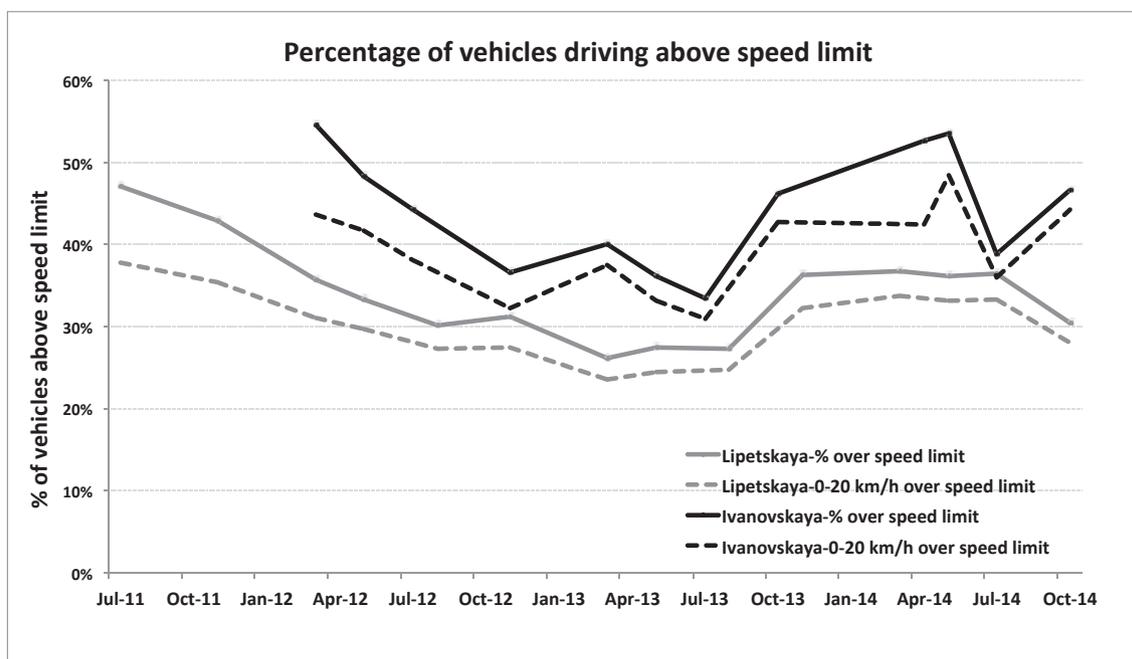


Fig. 3 – Trend in observed vehicular speeding in Ivanovskaya and Lipetskaya oblasts, 2011–2014 (N = 858,480).

Ivanovskaya oblast where the prevalence of speeding declined from 54.6% at baseline (March 2012) to 46.6% in the final round (October 2014). The change between baseline and last rounds were statistically significant (P -value < 0.05) (Table 5). The decline was largest among vehicles driving >30% over the speed limit, and smallest in the 0–10% over the speed limit category.

Table 5 – Change in vehicular speeding in Ivanovskaya and Lipetskaya oblasts, 2011–2014 (N = 858,480).

Speeding category	Baseline n (%)	Final round n (%)	Change n (%)
Lipetskaya			
Over the speed limit	33,006 (47.0)	32,498 (30.4)	(–16.6%)*
0–10% over the speed limit	6015 (18.2)	5285 (16.2)	(–2.0)
10–20% over the speed limit	4034 (12.2)	2902 (8.9)	(–3.3)
20–30% over the speed limit	2516 (7.6)	1198 (3.7)	(–3.9)
>30% over the speed limit	2958 (8.9)	496 (1.5)	(–7.4)
Ivanovskaya			
Over the speed limit	27,085 (54.6)	32,620 (46.6)	(–8.0)*
0–10% over the speed limit	5703 (21.0)	7925 (24.3)	3.3
10–20% over the speed limit	4281 (15.8)	4132 (15.7)	(–0.1)
20–30% over the speed limit	2411 (8.9)	1489 (4.5)	(–4.4)
>30% over the speed limit	2407 (8.9)	678 (2.1)	(–6.8)

* P -value < 0.05.

Overall, decrease in the proportion of vehicles driving above the posted speed limit was higher in Lipetskaya oblast. As compared with the baseline, the decline in the proportion of speeding vehicles was significant in all rounds (Fig. 4).

In Lipetskaya oblast, over seven rounds of KAP surveys, the percentage of drivers who correctly knew the speed limit increased from 48.5% in August 2011 (baseline) to 71.3% in September 2014 (final round). Over the same period, the percent of drivers who agreed that speeding is a cause of road traffic crashes, decreased, as did the proportion of drivers that reported hearing any messages about speeding (Table 6). These changes between baseline and final round were statistically significant (P -value < 0.05).

In Ivanovskaya oblast, over four rounds of KAP surveys, the percentage of drivers who correctly knew the speed limit increased from 83.5% in March 2012 (baseline) to 97.3% in October 2014 (final round) (Table 6). Over the same period, the percentage of drivers who agreed that speeding is a cause of road traffic crashes decreased, even though the proportion of drivers that reported hearing any messages about speeding recently increased. All changes between baseline and final rounds were statistically significant (P -value < 0.05) (Table 5).

The road traffic death rate per 100,000 population decreased from 15.8 in 2010 to 15.6 in 2014 in Ivanovskaya oblast and did not change in Lipetskaya oblast (24.2 in 2010 and 24.4 in 2014) and the Russian Federation (18.7 in 2010 and 18.4 in 2014). The death rates at national level were lower than in Lipetskaya but higher than in Ivanovskaya in each of the five years (Fig. 5). Through 2010–2014, the road traffic crash and injury rates per 100,000 population decreased in Lipetskaya oblast (191.5 and 246.9 in 2010 and 170.4 and 208.6 in 2014, respectively) and slightly increased in Ivanovskaya oblast (184.4 and 236.0 in 2010 and 186.7 and 243.4 in 2014, respectively) but did not change considerably in Russia (139.6 and 139.0 in 2010 and 175.4 and

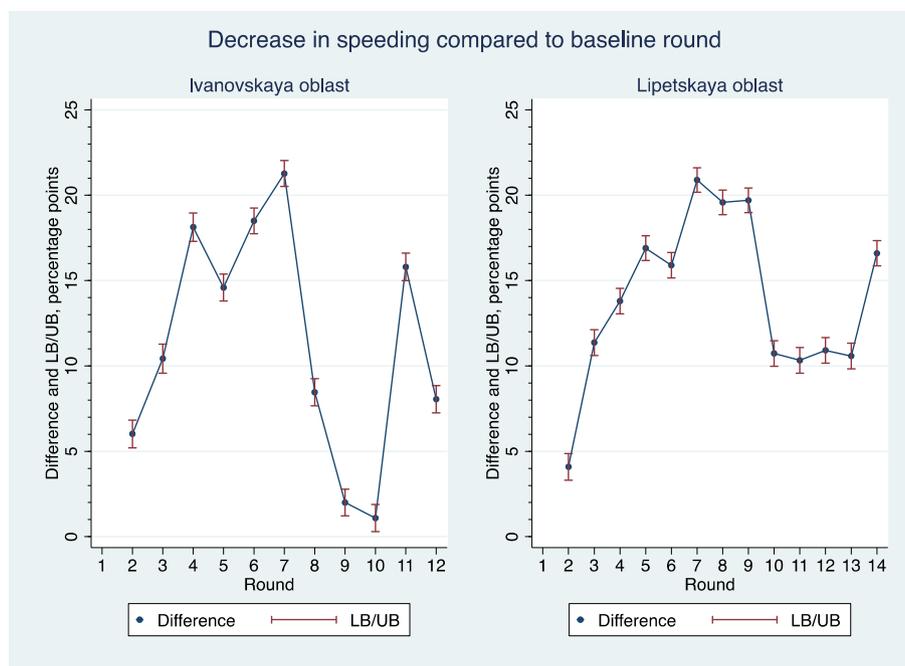


Fig. 4 – Decrease in speeding in Ivanovskaya and Lipetskaya oblasts.

Table 6 – Responses from speeding roadside surveys in Lipetskaya and Ivanovskaya oblasts, 2010–2014 (N = 6596).

Lipetskaya oblast	Baseline (Aug 2011)	Final round (Sep 2014)	Change
Number of participants	606	594	
Do you know the speed limit at this part of the road? Responded correctly	48.5%	71.3%	22.7% (P < 0.05)
Would you agree that speeding is a cause of RTIs? Yes (% of all drivers)	81.1%	53.5%	(–27.6%) (P < 0.05)
I think it is okay to exceed the speed limit if you are driving safely (% of all drivers)	24.8%	25.8%	(1.0%) (P = 0.345)
Have you heard any messages about speeding recently?	71.9%	35.5%	(–37.4%) (P < 0.05)
Ivanovskaya oblast	Baseline (Mar 2012)	Final round (Oct 2014)	Change
Number of participants	600	599	
Do you know the speed limit at this part of the road? Responded correctly	83.5%	97.3%	13.8% (P < 0.05)
Would you agree that speeding is a cause of RTIs? Yes (% of all drivers)	78.7%	59.8%	(–18.9%) (P < 0.05)
I think it is okay to exceed the speed limit if you are driving safely (% of all drivers)	14.2%	34.1%	19.9% (P < 0.05)
Have you heard any messages about speeding recently?	58.7%	66.4%	7.7% (P = 0.002)

175.2 in 2014, respectively), though the lowest rates were observed at national level in each year (Fig. 5).

Discussion

The monitoring and evaluation findings from 5 years reflect a mixed picture in the intervention oblasts of Lipetskaya and Ivanovskaya in Russia. The seat belt and child restraint use increased significantly and the prevalence of speeding also decreased over time in the two intervention oblasts. Results from the observation studies were consistent with the results from the roadside interviews. The changes occurred during the Russian government's road safety program (supported by the

Bloomberg Global Road Safety Program in the two intervention oblasts). The intersectoral program used a partnership approach and focused on activities including policy reform, legislation, enforcement, advocacy, and data collection and use.^{9,10,18} A functional Program Advisory Board jointly led by the Ministry of Internal Affairs, and Ministry of Health enabled the federal- and regional-level partners representing the Russian government to prepare and implement the joint work plan of activities in cooperation with international consortium partners.⁸

The integrated approach of social marketing campaigns accompanied by enforcement seems to be strongly associated with these improvements in observed rates.¹⁹ Seat belt use among drivers and front seat passengers was constantly higher than rear seat passengers; this difference is in keeping with the

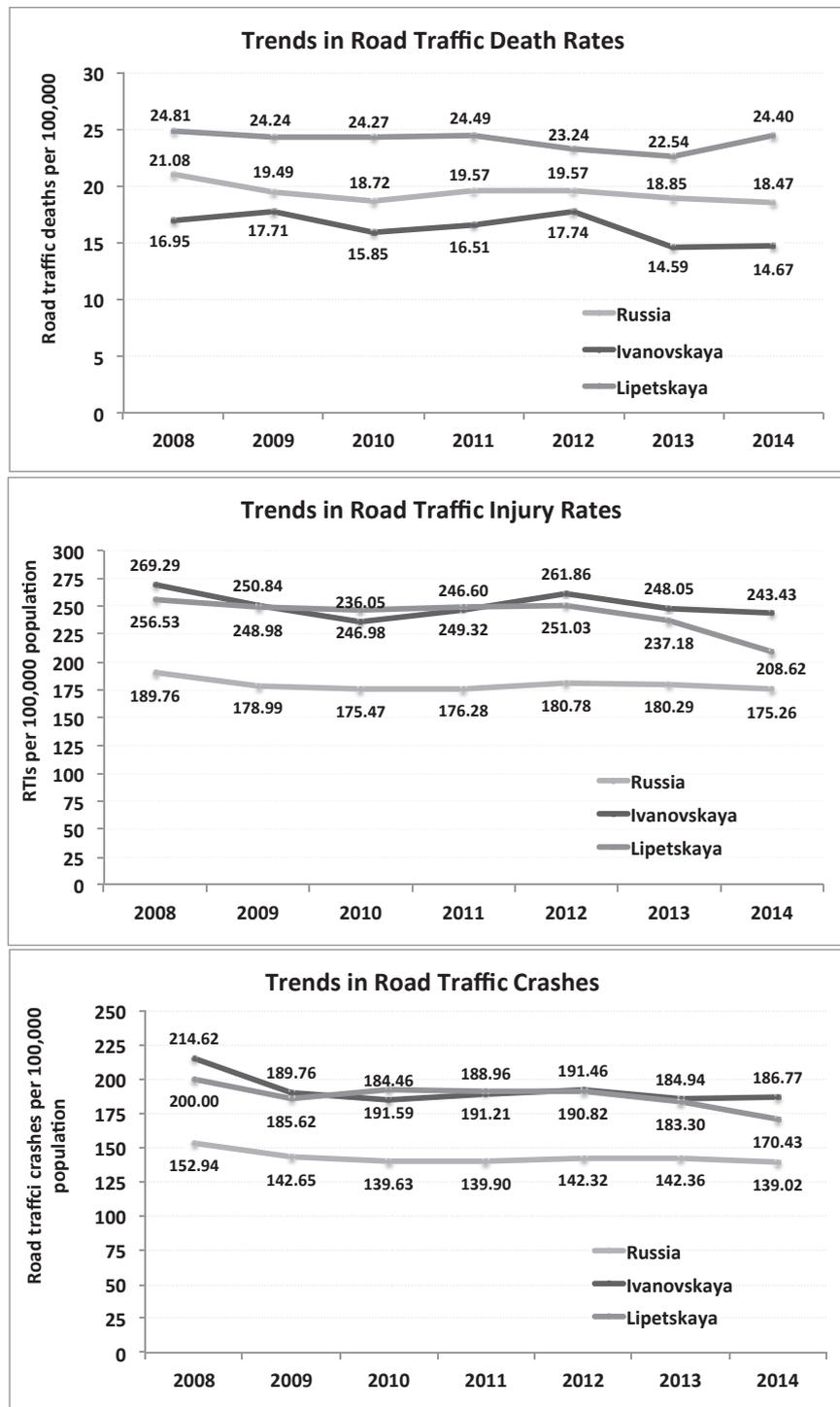


Fig. 5 – Trends in road traffic deaths, injuries, and crashes per 100,000 population, Russia, Lipetskaya, and Ivanovskaya oblasts, 2008–2013. Source: GKS.ru.

existing literature²⁰ and suggests that there is a need for more targeted interventions focused toward rear seat passengers.

In line with the existing literature, the self-reported rate of seat belt use was higher than the observed rate in the initial rounds.^{21–25} The self-reported rate remained unchanged in Lipetskaya and increased by only 7 percentage points in Ivanovskaya, whereas the observed seat belt wearing rate increased significantly in both the regions during the same

period. This might be due to a threshold level for self-reported rates that have been proposed by researchers^{21,25} and the authors of this study are conducting follow-up investigations.

Unlike the steady increase in seat belt use, the decline in speeding was uneven. After an initial steady decline in speeding, a sharp increase in speeding was observed in fall 2013. This increase was likely associated with a change in enforcement regulation according to which tickets were not

issued for vehicles exceeding the speed limit up to 20 km/h over the limit.¹⁷ The decline in speeding was likely associated with enhanced enforcement campaigns, consisting of increased police checks, widespread use of mobile- and fixed-speed cameras, and strict implementation of penalties. Despite the overall decline over time, the burden of speeding remained high in the final rounds in both oblasts with at least one in three vehicles (or higher) observed to be speeding. The program provided contributory evidence toward legislative changes to reduce speeding in the two oblasts. The speeding data collected before and after the administrative code amendment in September 2013 to increase the speed limits was also used by the Ministry of Interior to support the reversal of this amendment in State Duma in 2014–2015.^{26,27}

During the 5 years of the project, a total of 12 social marketing campaigns focusing on three main risk factors were conducted in the two intervention regions. Social marketing campaigns on restraint use were run for 6–10 week time periods in 2011, 2013, and 2014. Speeding campaigns were run for 2–6 weeks in 2012 and 2013, whereas campaigns focusing on child restraints were run in fall 2014 in the two regions.⁹ The novel use of the hard-hitting social marketing campaigns in the Russian context was also associated with an initial increase in the awareness of public education campaigns about consequences of seat belt use and speeding in both regions.¹⁰ Though overall, there was a decline in the awareness of public education campaigns and the proportion of respondents who had heard messages about the consequences of driving without seat belt in the final rounds of roadside interviews in both oblasts. Sustained improvement in seat belt use, child restraint use, and speeding was most likely possible due to coupling of social marketing with enforcement activities. This is supported by existing evidence that demonstrated that education and publicity without continued enforcement usually has a limited effect on sustained compliance with road safety practices.¹⁹

Road transport is one of the most complex and dangerous systems. In road traffic, risk is a function of four elements: exposure, underlying probability of crash, probability of injury, and given a crash the outcome of crash. There are multiple factors influencing each of these four elements; the factors influencing crash involvement include: inappropriate or excessive speed, presence of alcohol, vehicle, and other factors. Among others, seat belt, child restraint, and helmet use have influence on crash severity.²⁸ To correctly identify problems, risk factors, and priority areas, reliable and accurate data are needed.²⁹ Sadly, in Russia and other emerging economies, there is paucity of nationally representative and systematically collected data on the risk factors for road traffic injuries.¹⁴ The state databases such as State Inspection for Road Traffic Safety of the Ministry of Interior and Federal State Statistical Services of the Russian Federation have limited information on risk factor-specific death and injury rates. Only a handful of studies report on major causes of road traffic crashes and injuries in Russia: among the top leading causes are speeding and drunk driving.^{30–33} According to the Safe System Approach, national road safety strategy should involve a holistic view of the road transport system and the interactions among roads, roadsides, travel speeds, vehicles, and road users.³⁴ Despite observing a considerable increase in

restraint use and slight decrease in speeding, the road traffic crash statistics show only slight or no changes during the project period. Several explanations could help understand the reasons: (1) the road transport system is complex with multiple elements and risk factors; the Bloomberg Philanthropies Global Road Safety Program focused only on restraint use and speeding in the Russian Federation; (2) evidence shows that improvements in individual risk factors not always and not immediately lead to the improvements in road traffic crashes; and finally (3) the risk factor-specific road traffic crash and injury data were not available to better understand the influence of improvements in selected risk factors.

The Russian government has been implementing a Federal Target Road Safety Program nationally since 2006. Available information on the federal program indicates that there was a 5.5% decrease in social risk and an 8.2% decrease in transport risk of road safety in 2013 compared with 2012.³⁵ These trends make it difficult to attribute all of the changes in the two intervention regions to one specific program; however, the temporal relationship between risk factor changes and program implementation and the plausible nature of the changes (high enforcement, lower risk factors), bodes well for a positive effect.

This type of evaluation had several strengths, including the use of multiple data collection methods, multiple measurement points with regular rounds of data collections, large sample sizes, detailed records of all risks, roads, and vehicles. However, the observational data were collected during daytime only, and was unable to assess the variation in risk factor prevalence in evenings. The existing literature indicates that seat belt use might be lower and speeding more prevalent during nighttime.^{36,37} Second, observations and surveys were conducted in carefully selected but limited number of districts in the two oblasts; thus results cannot be considered nationally representative of the Russian Federation. Third, we were not able to collect information on road traffic injuries and enforcement specific to risk factors (e.g. crashes, injuries, deaths, and violations due to speeding). Fourth, our work in Russia did not involve similar observations and surveys in comparison regions, making it difficult to measure the direct impact of the program-adjusted secular trends.

Conclusion

The results of the monitoring and evaluation activities demonstrated that there were improvements in all targeted risk factors in the two intervention regions. It is likely that the social marketing activities and enforcement triggered improvements in both restraint use and speeding. These changes offer lessons in the potential impact of concerted efforts for road safety in Russia and other settings. The use of data for program management and direction is also a positive lesson for future efforts toward the Decade of Action for global road safety.

Author statements

Ethical approval

The study protocols were approved both by the Institutional Review Boards (ethics committees) at the Johns Hopkins

Bloomberg School of Public Health, USA and the Departments of Public Health of Lipetskaya and Ivanovskaya oblasts.

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Competing interests

None declared.

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