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Nighttime Enforcement of Seat Belt Laws: An Evaluation of Three Community Programs

Background

Enforcement of seat belt laws has been conducted largely during daylight hours. Daytime enforcement programs have worked well to improve observed belt use rates during the day, but have been shown less often to affect nighttime use. Fatality data show that unbelted occupants at night are a large portion of the motor vehicle fatality problem, with belt use at its lowest around 1 a.m. A substantial reduction in fatalities could be achieved by getting late-night occupants to buckle up.

This study had two objectives. The first objective was to collect information regarding methods of nighttime enforcement. The second objective was to implement and evaluate programs that enforced the seat belt use law at night.

Methods of Nighttime Enforcement

Discussions were conducted with law enforcement agencies (LEAs) to better understand current or planned approaches to night belt enforcement and determine prerequisites to those approaches. From these discussions, four general techniques were identified with sub-types:

1. Checkpoints/Safety Zones/Mini-Cades:

   Seat Belt Checkpoint—This is a set point somewhere on a roadway where highly visible law enforcement officers with marked vehicles check motorists for seat belt violations.

   Combined Alcohol/Belt Checkpoint—A seat belt checkpoint and a sobriety checkpoint are implemented at the same time.

   Safety Enforcement Zone—Like a checkpoint operation but with signage indicating a "safety enforcement zone" is ahead.

   Mini-Cade—This tactic requires as few as three officers who put up signs stating that a "seat belt check" or "safety check" is ahead. Patrol car lights are left on for attention. Moving violations are not necessarily ticketed due to a relatively low number of officers on the scene. A warning

and safety literature is often provided to passing motorists who are not complying.

2. Unsigned Enforcement Spotters—A plain clothes or uniformed officer stands well ahead of other enforcement officers and spots violations. This enforcement tactic is judged to be the most productive for issuing seat belt tickets when done in a primary law environment.

3. Saturation Patrols—This tactic includes putting more patrol vehicles than usual in a designated area and asking officers to spot and stop motorists not complying with the seat belt law. It can lack mobility at night because it is limited to lighted locations. This approach is very difficult in secondary law locations.

4. Routine Patrol—Officers are asked to spot and enforce seat belt violations during their normal traffic patrol activities. This technique lacks mobility because it is limited to lighted locations. This approach is very difficult in secondary law locations.

Evaluation of Nighttime Enforcement Methods

Three study communities participated in high-visibility enforcement (HVE) demonstration programs designed to improve nighttime seat belt use: Asheville and Greenville, North Carolina, and Charleston, West Virginia. The HVE programs consisted of four 10-day periods of nighttime traffic enforcement during each quarter of calendar year 2007. At a minimum, the belt enforcement occurred between 10 p.m. and 2 a.m. Enforcement efforts were supported with paid and earned media that focused on nighttime belt enforcement. Program evaluation included collection of enforcement and media data, program awareness surveys, and observation surveys of seat belt use at night. Breath tests at roadside to obtain blood alcohol concentration (BAC) measures, and analysis of data on single-vehicle nighttime crashes, were used in Asheville to determine whether the night belt program affected drinking and driving.

Asheville implemented seat belt checkpoints in a State containing primary enforcement provisions. Greenville chose

saturation patrols as its intervention approach. Charleston, working with a law containing secondary enforcement provisions, used safety enforcement zones. Table 1 describes the enforcement effort at each site. Personnel hours differed between the test communities, and enforcement hours varied across waves. Nonetheless, all three test sites had a large enforcement presence in each wave. The type of enforcement clearly affected the number of seat belt tickets issued; officers in Asheville and Charleston wrote far fewer seat belt citations compared to Greenville. Belt enforcement at night also led to DUI arrests, speeding tickets, and other citations.

Table 1: Enforcement Efforts

	Wave 1	Wave 2*	Wave 3	Wave 4
Asheville:				
Program Checkpoints	10	10	13	15
Personnel Hours	518	720	592	406
Seat Belt Tickets	32	20	60	35
DUI Arrests	21	31	17	8
Speeding	9	9	40	77
Other Tickets/Arrests	283	396	364	161
Greenville:				
Spotter/Saturation Patrols	35	34	35	36
Personnel Hours	536	536	329	370
Seat Belt Tickets	421	301	223	149
DUI Arrests	25	18	17	16
Speeding	51	11	25	44
Other Tickets/Arrests	222	210	198	166
Charleston:				
Traffic Safety Zones	17	10	10	9
Personnel Hours	739	1009	1041	640
Seat Belt Tickets	40	32	31	27
DUI Arrests	26	34	36	17
Speeding	24	74	150	225
Other Tickets/Arrests	229	461	250	78

*Coincided with National *Click It or Ticket* Campaign

Table 2 shows the observed nighttime belt use rate before and after the enforcement intervention for three of the four enforcement waves. No observations were conducted surrounding Wave 2, which coincided with the national *Click It or Ticket* mobilization. Nighttime belt use increased in Asheville and Charleston using checkpoint style enforcement. Greenville, which issued the greatest number of seat belt tickets through saturation patrols, had less improvement. While Charleston showed a decrease in observed belt use during Wave 4 according to weighted numbers, this was attributed to a handful of observation sites with relatively few observations collected at night. Examination of raw data showed a contrasting increase.

Voluntary breath tests were conducted at Asheville checkpoints. Table 3 shows the percentage of tested drivers found to be above each of three specified BAC levels (each column

Table 2: Observed Nighttime Belt Use Rate

	Asheville Raw/Weighted		Greenville Raw/Weighted		Charleston Raw/Weighted	
Wave 1						
Pre	83.3%	85.6%	86.1%	83.4%	58.4%	58.4%
Post	85.5%	87.5%	85.8%	84.6%	66.7%	61.8%
Diff.	+2.2[b]	+1.9[2]	-0.3	+1.2	+8.3[a]	+3.4[2]
Wave 3						
Pre	85.9%	86.3%	86.3%	86.2%	70.2%	66.1%
Post	89.3%	89.5%	88.5%	87.6%	71.4%	70.2%
Diff.	+3.4[a]	+3.2[1]	+2.2[a]	+1.4	+1.2	+4.1[1]
Wave 4						
Pre	83.7%	83.4%	87.2%	86.8%	63.2%	64.5%
Post	91.0%	92.5%	87.3%	87.1%	66.5%	60.2%
Diff.	+7.3[a]	+9.1[1]	+0.1	+0.3	+3.3[b]	-4.3[1]

[a]Chi-square Test; Statistically Significant at $p < .01$
[b]Chi-square Test; Statistically Significant at $p < .05$
[1]Binary Logistic Regression; Statistically Significant at $p < .01$
[2]Binary Logistic Regression; Statistically Significant at $p < .05$

includes the drivers in the column and columns to the right). The Wave 3 post-test doubled as the Wave 4 pre-test because the close proximity of the two enforcement waves to each other did not allow sufficient time to conduct two BAC data collection waves. Table 3 shows the percentage of drinking drivers decreasing over the course of the program. Crash data analysis showed the number of single vehicle nighttime crashes appearing to decrease during the one month following each program wave. This suggested that the Asheville night belt program also deterred alcohol-impaired driving.

Table 3: Asheville Drivers With Positive BACs

	BAC > .00	BAC > .049	BAC > .079
Wave 1			
Pre	16%	6%	2%
Post	11%	4%	3%
Diff.	-5[a]	-2	+1
Wave 3			
Pre	14%	4%	2%
Post	14%	3%	2%
Diff.	0	-1	0
Wave 4			
Pre	14%	3%	2%
Post	10%	3%	1%
Diff.	-4[a]	0	-1

[a]Chi-square Test; Statistically Significant at $p < .05$

How to Order

For a copy of *Nighttime Enforcement of Seat Belt Laws: An Evaluation of Three Community Programs* (37 pages plus appendices) prepared by Preusser Research Group, Inc., write to the Office of Behavioral Safety Research, NHTSA, NTI-130, 1200 New Jersey Avenue SE., Washington, DC 20590, or send a fax to 202-366-7394, or download from www.nhtsa.gov.