

Use of Safety Belts: Enhanced Enforcement Programs

Summary Evidence Tables

Studies measuring the effect of enhanced enforcement on fatal and nonfatal injuries

Author, Year Study period Design suitability (design) Quality of execution Evaluation setting	Intervention elements	Effect measure Results Type of safety belt law Citation information	Value used in summary									
Jonah 1985 1977-1982 Greatest (before-after with concurrent comparison) Fair Ottawa-Carleton, Ontario, Canada	Targeted patrols with publicity 1979 blitz—unspecified details Blitz 1 (Dec 1981): 1 month Blitz 2: (Mar/Apr 1982) 2 days each month Blitz 3: (Oct 1982) 1 week	Driver fatality & injury rates per 10,000 population <table border="1" data-bbox="1058 568 1654 649"> <thead> <tr> <th></th> <th>Pre (1977-79)</th> <th>During (1980-82)</th> </tr> </thead> <tbody> <tr> <td>Blitz</td> <td>19.78</td> <td>17.04</td> </tr> <tr> <td>Non-blitz</td> <td>21.84</td> <td>22.13</td> </tr> </tbody> </table> Primary safety belt law Citations: blitz months (approx. 360 citations/month) Non-blitz months (approx. 100 citations/month)		Pre (1977-79)	During (1980-82)	Blitz	19.78	17.04	Non-blitz	21.84	22.13	-15.3%
	Pre (1977-79)	During (1980-82)										
Blitz	19.78	17.04										
Non-blitz	21.84	22.13										
Williams 1996 Jan 1987-Mar 1994 Moderate (time series) Fair North Carolina	Supplemental patrols, roving patrols, and checkpoints with publicity 2 months (Oct-Nov 1993)	Front seat occupants involved in fatal/serious injury crashes Predicted # of front seat serious/fatal injuries: 5,425 Actual # of front seat serious/fatal injuries: 5,062 Primary safety belt law Citations: no data, only “substantial increase in citations”	-6.7%									

Studies measuring the effect of enhanced enforcement on safety belt use

Author, Year Study period Design suitability (design) Quality of execution Evaluation setting	Intervention elements	Effect measure Results Type of safety belt law Citation information	Value Used in summary Follow-up
Jonah 1982 Sep 1979-Apr 1980 Greatest (time series with concurrent comparison group) Fair Ottawa, Ontario, Canada	Targeted patrols and checkpoints with publicity 1 month (Oct 1979) 23,910 drivers observed	Observed driver safety belt use Pre: I=58.3%, C=54.3% Post: I=79.8%, C=51.9% 1 month post I=76.5%, C=51.3% 6 months post I=70.2%, C=50.1% (p<.001) Primary safety belt law Citations: increased by 975% in Ottawa during program and "very little change" in control location (p<.001)	+23.9% Follow-up (6 months) +16.1%
Jonah 1985 Nov 1981-Oct 1982 Greatest (before and after with concurrent comparison) Fair Ottawa-Carleton, Ontario, Canada	Targeted patrols with publicity Blitz 1: 1 month (Dec 1981) Blitz 2: 2 days each month (Mar/Apr 1982) Blitz 3: 1 week (Oct 1982) 32,660 drivers observed	Observed driver safety belt use Pre: I=66.0%, C=43.8% Post: I=83.6%, C=44.1% Primary safety belt law Citations: blitz months (approx. 360 citations/month) Non-blitz months (approx. 100 citations/month)	+17.3%
Watson 1986 Feb-May (year not reported) Greatest (before-after with concurrent comparison) Fair Unidentified community in British Columbia, Canada	Targeted patrols with publicity 4 weeks 3665 occupants observed	Observed safety belt use among drivers Pre: I= 44.6%, C=60.9% Post: I=71.4%, C=56.6% Primary safety belt law Citations: "30 times" as many during as prior	+31.1%

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Williams 1987 Nov 1985-Dec 1986 Greatest (before-after with concurrent comparison) Fair Elmira, New York	Foot patrols, supplemental and targeted patrols with publicity Blitz 1: 3 weeks (Nov 1985) Blitz 2: 3 weeks (Apr 1986)	Observed front seat safety belt use Pre: I=49%, C=42% Post: I=77%, C=43% 8 months post: I=66%, C=37% Primary safety belt law Citations: during blitz 1, 189 citations were written; prior to the program, 1-2 citations were written weekly	+27% Follow-up (8 months) +22%
Rood 1987 Apr 1986-Feb 1987 Greatest (time series with concurrent comparison) Good Albany and Greece, New York	Albany, NY: supplemental patrols with publicity Greece, NY: targeted patrols with publicity Four intermittent blitzes	Observed front safety belt use <u>Supplemental Patrols</u> Pre: I=52.4%, C=53.7% Post: I=64.6%, C=56.5% 4 months post: I=60.9%, C=54.2% <u>Targeted Patrols</u> Pre: I=49.0%, C=53.7% Post: I=65.8%, C=56.5% 4 months post: I=64.6%, C=54.2% Primary safety belt law Citations: increased in Albany by 800%, in Greece by 1000%, and in Tonawanda by 200% during blitzes	<u>Supplemental</u> +9.4% Follow-up (4 months) +8.0% <u>Targeted</u> +14.0% Follow-up (4 months) +15.1%

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Malenfant 1988 Aug-Feb (year not reported) Moderate (time series) Fair Halifax and Moncton, Nova Scotia	Targeted patrols with publicity 4 weekends 9600 drivers observed	Observed driver safety belt use <table border="0"> <tr> <td></td> <td style="text-align: center;"><u>Halifax</u></td> <td style="text-align: center;"><u>Moncton</u></td> </tr> <tr> <td>Pre</td> <td style="text-align: center;">86.0%</td> <td style="text-align: center;">62.5%</td> </tr> <tr> <td>Post</td> <td style="text-align: center;">86.0%</td> <td style="text-align: center;">73.0%</td> </tr> <tr> <td>1 month post</td> <td style="text-align: center;">86.0%</td> <td style="text-align: center;">66.0%</td> </tr> </table> Primary safety belt law No citation information		<u>Halifax</u>	<u>Moncton</u>	Pre	86.0%	62.5%	Post	86.0%	73.0%	1 month post	86.0%	66.0%	+5% Follow-up (1 month) +2%
	<u>Halifax</u>	<u>Moncton</u>													
Pre	86.0%	62.5%													
Post	86.0%	73.0%													
1 month post	86.0%	66.0%													
Lund 1989 Sep 1986-May 1987 Greatest (time series with concurrent comparison) Fair Modesto, California	Targeted patrols with publicity 8 weeks 10,645 observations in Modesto 1,782 observations in Visalia	Observed front seat safety belt use Pre: I=32%, C=28% (p<.05) Post: I=56%, C=28% (p<.0001) 23 weeks post: I=47%, C=23% (p<.0001) Secondary safety belt law Citations: increased from 300-400 per month prior to about 550 in the months after the intervention	+24% Follow-up (23 weeks) +20%												
Dussault 1990 Aug-Oct 1987 Moderate (time series) Fair Quebec, Canada	Targeted patrols with publicity and incentive component Enforcement: 4 weeks (Oct 5-31, 1987) Incentives: 6 days (Oct 26-31, 1987)	Observed safety belt use (unspecified) <table border="0"> <tr> <td></td> <td style="text-align: center;"><u>Urban</u></td> <td style="text-align: center;"><u>Expressways</u></td> </tr> <tr> <td>Pre:</td> <td style="text-align: center;">66.8%</td> <td style="text-align: center;">79.8%</td> </tr> <tr> <td>Post:</td> <td style="text-align: center;">79.2%</td> <td style="text-align: center;">84.7%</td> </tr> <tr> <td>6 months post:</td> <td style="text-align: center;">77.1%</td> <td style="text-align: center;">87.1%</td> </tr> </table> Primary safety belt law Citations: increased about 340%, from average of 430 per day in pre-intervention period to 1,467 during enforcement.		<u>Urban</u>	<u>Expressways</u>	Pre:	66.8%	79.8%	Post:	79.2%	84.7%	6 months post:	77.1%	87.1%	+8.6% Follow-up (6 months) +8.8%
	<u>Urban</u>	<u>Expressways</u>													
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Mortimer 1990 Jan 1987-Feb 1988 Greatest (time series with concurrent comparison) Fair Rantoul, Illinois	Targeted patrols with publicity Blitz 1:2 weeks (Oct 1987) Blitz 1:2 weeks (Nov 1987) About 10,000 drivers observed	Observed driver safety belt use Pre: I=42%, C=26% Post: I=50%, C=26% 7-12 weeks post: I=44%, C=27% Secondary safety belt law Citations: safety belt citations as % of all citations increased from 0% to about 25% during enforcement	Drivers +8% Follow-up (7-12 weeks) +1%
Hagenzieker 1991 June 1988-February 1989 Moderate (time series) Fair Eight military bases in the Netherlands	Supplemental patrols with publicity 2 months	Observed front safety belt use Pre: 67% Post: 75% (p<.001) 3 months post: 78% Primary safety belt law Citations: number varied by base, number of fines per hour correlated with observed use (Pearson r =.80, p<. 05)	+8% Follow-up (3 months) +11%
Streff 1992 Sep 1989-Dec 1990 Moderate (time series) Good Western Michigan	Supplemental and targeted patrols with publicity 11 months (Nov 1989-Sep 1990) 12,414 observations	Observed front seat safety belt use Pre: 56.7% Post: 67.6% 3 months post: 63.6% Secondary safety belt law Citations: number of safety belt citations and warnings per 100 speed citations increased 40% from about 24 to 39.	+10.9% Follow-up (3 months) +6.9%

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Williams 1994 Dates not specified (8-9 weeks) Moderate (time series) Fair Elizabeth City, Haywood County, and High Point, North Carolina	Supplemental patrols and checkpoints with publicity and incentive component 8-9 weeks	Observed front seat safety belt use <u>Elizabeth City</u> Pre 69%; Post 79%; Effect 10% <u>Haywood County</u> Pre 43%; Post 81%; Effect 38% <u>High Point</u> Pre 65%; Post 78%; Effect 13% Primary safety belt law Citations: 2,561 were issued during the intervention	+20%															
Roberts 1994 Jul 1990-Nov 1990 Greatest (before-after with concurrent comparison) Fair 6 communities in Virginia	Supplemental and targeted patrols with publicity 3 3-week blitzes Jul 1990-Nov 1990	Observed front seat safety belt use Pre: I=56%, C=49% Post: I=74%, C=45% (p<.01) Secondary safety belt law Citations: number issued not provided, Pearson r = .86 (p <.003) for correlation between percentage of safety belt use and citation-to-resident ratio	+22%															
Williams 1996 Oct 1992-Aug 1994 Least (before-after) Fair North Carolina	Targeted patrols, checkpoints, and roving patrols with publicity Blitz 1: 8 weeks (Oct-Nov 1993) Blitz 2: 3 weeks (Jul 1994)	Observed driver safety belt use <table border="0" style="margin-left: 40px;"> <tr> <td></td> <td>10/92</td> <td>11/93</td> <td>5/94</td> <td>8/94</td> </tr> <tr> <td></td> <td>pre</td> <td></td> <td>f-up</td> <td>post</td> </tr> <tr> <td>Drivers</td> <td>64%</td> <td>80%</td> <td>73%</td> <td>81%</td> </tr> </table> Follow-up: 7 mos. for 11/93 program Primary safety belt law Citations: no data, noted "substantial increase in citations"		10/92	11/93	5/94	8/94		pre		f-up	post	Drivers	64%	80%	73%	81%	+17% Follow-up (7 months) +9%
	10/92	11/93	5/94	8/94														
	pre		f-up	post														
Drivers	64%	80%	73%	81%														

Author, Year Study period Design suitability (design) Quality of execution Evaluation setting	Intervention elements	Effect measure Results Type of safety belt law Citation information	Value Used in summary Follow-up
Solomon 1999 Nov 1995-Aug 1998 Moderate (time series) Fair 16 U.S. States	Programs varied by state (checkpoints, supplemental patrols, and targeted patrols with publicity)	Observed front seat safety belt use Mean point difference across all 16 states +7.7% Mean point difference across 3 primary safety belt law states +16.8% (IA, TX, OR) Mean point difference across 13 secondary safety belt law states +5.6% (SC, IN, MS, FL, NJ, UT, WI, WA, AZ, NV, MN, VA, IL) Primary and secondary safety belt laws Citations: 273,437 safety belt citations issued during enforcement periods. In secondary law states, 21% of all citations issued were for safety belt violations; corresponding % in primary law states was 46%	+7.7%