

Reducing Alcohol-impaired Driving: 0.08% Blood Alcohol Concentration (BAC) Laws

Summary Evidence Tables

Author & year (study period) Design suitability: design Quality of execution Evaluation setting	Study description ^a and other information	Effect measure	Results			
			Reported baseline	Reported effect	Value used in summary	Follow-up time
Research and Evaluation Associates 1991 (1986-1990) ¹ Moderate: Time series Fair California	Law went into effect: Jan. 1, 1990 Comparison: Pre-law fatalities from crashes involving alcohol in California Note: Because .08 BAC and administrative license revocation laws were implemented within 6 months of each other, separate effects of each cannot be isolated	Fatalities from crashes involving drivers with BAC \geq 0.01%	Pre-law mean = 225 fatalities/mo	-12% (p < .01)	-12%	1 year
Rogers 1995 (1985-1993) ² Moderate: Time series Fair California	Law went into effect: Jan. 1, 1990 Comparison: Pre-law fatal and severe injury crashes in California Note: Because .08 BAC and administrative license revocation laws were implemented within 6 months of each other, separate effects of each cannot be isolated	Single vehicle nighttime (8:00 PM-3:59 AM) fatal and severe injury crashes involving male drivers	Pre-law mean estimated from graph = ~190 crashes/mo	~ -7% (NS)	-7%	4 years
Foss 1998 (1991-1996) ³ Greatest: Before-after with concurrent comparison Fair North Carolina	Law went into effect: Oct. 3, 1993 Comparisons: Pre-law fatal crashes involving alcohol in North Carolina and fatal crashes involving alcohol in 37 states without 0.08% BAC laws Note: Some of post-law effect in NC may be attributable to the Booze-It-and-Lose-It sobriety checkpoint program (Nov. 1994 – July 1995)	Percent change in proportion of all fatal crashes involving drivers \geq 21 years with BAC \geq 0.10%	Pre-law proportion: NC = .228 37 comparison states = .238	Post-law proportion: NC = .183 37 comparison states = .207 NC vs. 37 comparison states: -6% (95% CI, -13%, +3%)	-6%	39 mos
Apsler 1999 (1982-1995) ⁴ Greatest: Time series with concurrent comparison Fair States: CA, FL, KS, ME, NH, NM, NC, OR UT, VT, VA	Laws went into effect: Aug. 1, 1983 to July 1, 1994 Comparisons: Pre-law fatal crashes involving alcohol and fatal crashes not involving alcohol	Ratio of fatal crashes involving a driver with BAC \geq 0.10% vs. 0.00%	N/A	Coefficient of change in ratio of fatal crashes involving a driver with BAC \geq 0.10% vs. 0.00% CA: -0.10, p < .05 FL: -0.15, p < .05 KS: -0.15, p < .05 ME: +0.09, NS NH: +0.16, NS NM: -0.36, p < .05 NC: -0.08, p < .05 OR: +0.60, NS UT: -0.09, NS VT: -0.48, p < .05 VA: -0.13, p < .05 Eight of eleven coefficients were in the expected direction; 7 were statistically significant	Not used because coefficient cannot be transformed to percent change	1.5–12.4 years

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<i>Appendix Continued</i>						
Hingson 2000 (1988-1998; varied by state, range 8 to 12 years) ⁵ Greatest: Before-after with concurrent comparison Fair States: FL, KS, NH, NM, NC, VA	Laws went into effect: July 1, 1993 to July 1, 1994 Comparisons: Pre-law fatal crashes involving alcohol in study states and fatal crashes involving alcohol in matched comparison states	Percent change in the proportion of all drivers in fatal crashes with BAC \geq 0.10%	Pre-law proportion FL: .21 GA: .21 KS: .24 OK: .23 NH: .23 CT: .28 NM: .31 CO: .25 NC: .20 TN: .25 VA: .22 MD: .14	95% CI FL vs GA: - 7% (-14%, \pm 0%) KS vs OK: - 4% (-15%, +10%) NH vs CT: - 7% (-25%, +14%) NM vs CO: - 6% (-17%, +6%) NC vs TN: - 5% (-22%, +4%) VA vs MD: - 7% (-19%, +7%) Overall: - 6% (-10% , -2%)	FL: -7% KS: -4% NH: -7% NM: -6% NC: -5% VA: -7%	4-5 years
Hingson 1996 (1976-1991; varied, range from 3 to 15 years) ⁶ Greatest: Before-after with concurrent comparison Fair States: CA, ME, OR, UT, VT	Laws went into effect: Aug. 1, 1983 to July 1, 1990 Comparisons: Pre-law fatalities among drivers with BAC \geq 0.08% in study states and fatalities among drivers with BAC \geq 0.08% in matched comparison states Note: All study states and only one comparison state had administrative license revocation laws (authors estimate these accounted for ~5% of observed decreases in fatal crashes)	Percent change in the proportion of fatally injured drivers with BAC \geq 0.08%	Pre-law proportion CA: 0.22 TX: 0.20 ME: 0.26 MA: 0.22 OR: 0.29 WA: 0.28 UT: 0.14 ID: 0.15 VT: 0.25 NH: 0.22	95% CI CA vs TX: -18% (-33%, -12%) ME vs MA: - 7% (-33%, +12%) OR vs WA: -18% (-25%, -11%) UT vs ID: -22% (-36%, - 5%) VT vs NH: +45% (-13%,+144%) Overall: -16% (-22%, -10%)	CA: -18% ME: -7% OR: -18% UT: -22% VT: +45%	2-8 years

Appendix Continued

Author & year (study period) Design suitability: design Quality of execution Evaluation setting	Study description ^a and other information	Effect measure	Results			Follow-up time
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Scopatz 1998 (1976-1991; varied, range from 3 to 15 years) ⁷ Greatest: Before-after with concurrent comparison Fair States: CA, ME, OR, UT, VT	Laws went into effect: Aug. 1, 1983 to July 1, 1990 Comparisons: pre-law fatalities among drivers with BAC \geq 0.08% in study states and fatalities among drivers with BAC \geq 0.08% in matched comparison states Note: This study is a re-analysis of Hingson 1996 study using different comparison states	Percent change in the proportion of fatally injured drivers with BAC \geq 0.08%	Pre-law proportion CA: 0.22 AZ: 0.16 ME: 0.26 RI: 0.21 OR: 0.29 WY: 0.29 UT: 0.14 CO: 0.30 VT: 0.33 NY: 0.25	(CIs were not provided) CA vs AZ: +15% ME vs RI: -38% OR vs WY: -29% UT vs CO: +25% VT vs NY: -29% Overall: -5%	CA: +15% ME: -38% OR: -29% UT: +25% VT: -29%	2-8 years
Johnson 1995 (1982-1992; varied) range from 3 to 4 years ⁸ Greatest: Before-after with concurrent comparison Fair States: CA, ME, OR, UT, VT	Laws went into effect: Aug. 1, 1983 to July 1, 1990 Comparison: Pre-law fatal crashes involving alcohol in study states	Percent change in proportion of all fatal crashes involving drivers \geq 21 years with BAC \geq 0.10%	Pre-law proportion CA: 0.246 ME: 0.219 OR: 0.341 UT: 0.198 VT: 0.336	CA: -4%, p = .09 ME: +1%, p = .10 OR: -11%, p = .06 UT: 0%, p = .90 VT: -31%, p = .04	CA: -4% ME: +1% OR: -11% UT: 0% VT: -31%	18-24 mos
Voas 2000 (1982-1997) ⁹ Greatest: Time series with concurrent comparison Fair 50 U.S. states and Washington, DC	Laws went into effect: Aug. 1, 1983 to July 2, 1997 Location: All 50 states and DC; 16 states had enacted 0.08% BAC laws by Dec. 1997 Comparisons: Pre-law fatal crashes involving alcohol in 16 states that enacted 0.08% BAC laws by Dec. 1997 and fatal crashes involving alcohol in 34 states that did not enact 0.08% BAC laws by Dec. 1997	Change in the ratio of fatal crashes involving drivers \geq 21 years with BACs \geq 0.10% vs. 0.00%	N/A	-8.0% (95% CI, -3.4%, -12.4%)	-8.0%	0.5-14.4 years

Appendix Continued

^a Each study analyzed information from police incident reports of motor vehicle crashes that occurred on public roads.

References

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