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THE USE OF ECONOMIC INCENTIVES
AND PUBLIC EDUCATION TO INCREASE
SEAT BELT USE IN A COMMUNITY

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The Use of Economic Incentives and Public Education to Increase Seat Belt Use in a Community; by B.J. Campbell, PhD; William W. Hunter, MCE; Marianne G. Gemming, MPH; and J. Richard Stewart, PhD; The University of North Carolina Highway Safety Research Center, Chapel Hill.

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A. BACKGROUND

The use of lap/shoulder belts in the U.S. has always been low. Data from a 19 city survey show 14 percent use (NHTSA, 1983). This low rate exists despite evidence that belts reduce death risk by 60-65 percent compared to unbelted occupants (Campbell, 1984).

Efforts to increase belt use through public information programs have not shown the desired success. Surveys indicate many respondents do not understand how belts work or the risks of being unbelted. Also, some respond negatively from stated fear of entrapment, discomfort, etc. (Nichols, 1982).

B. STUDY APPROACH

HSRC designed a campaign that combined giving prizes for belt wearing with a public education effort. In this six-month effort, called "Seat Belts Pay Off," the approach was to stop vehicles at random and give belted vehicle occupants a small prize (and a chance for a large cash prize).

The prizes served as a reward for belt wearers, and an incentive for those who knew of the contest but had not been stopped. The approach was designed to make people think about buckling up often enough to encourage a regular belt use habit.

There is sound scientific underpinning for this incentive approach, based on studies of human and animal behavior. It has been demonstrated repeatedly that a given behavior can be strengthened if rewards are forthcoming in a manner consistent with principles of learning. These principles have been applied in thousands of studies covering a wide range of subject matter. It is not surprising that this concept has been applied successfully to increase belt wearing.

C. EXAMPLES OF OTHER EFFORTS

1. Dupont. A 1980 campaign featured incentives of catalog gifts valued at \$12-\$15 (Spoonhour, n.d.). The contingency was that the 900 company employees had to reach and hold 90 percent belt use for two months. From an estimated baseline use rate of 46 percent, the 90 percent target was reached.

A number of promotional items kept the program visible, including bulletin board messages, signs in parking lots, costumed characters (e.g., "Easter Bunnies"), films, letters, news coverage, etc. Small prizes (candy "kisses") were also given out periodically to belt wearers. Prizes valued around \$24,000.

2. General Motors. A "Seat Belt Sweepstakes" was initiated at one

GM facility (Le Roux, 1982; General Motors Corporation, 1982; Geller, 1982). Three new automobiles were to be awarded through a drawing if employees reached three progressively higher belt use levels. To be eligible, employees had to sign a belt use pledge card. 5,000 of the 6,000 employees signed.

From a baseline rate of 36 percent, goals were set at 50 percent use for the first month, 65 percent for the next six weeks, and finally a 70 percent sustained daily average use over a three month period. All three goals were reached and the automobiles awarded. Smaller prizes were also raffled. Prizes valued about \$30,000.

3. Highway Safety Research Center. Projects were conducted at a local high school and a large local business (Campbell, Hunter, Stewart and Stutts, 1982). Over a one-month period at each site, 300 coupons, redeemable for \$5, were given to restrained occupants in randomly selected vehicles:

	Baseline	Education	Incentive	Follow-up
high school	20%	34%	53%	36%
business	8%	28%	56%	25%

At both locations, belt use peaked at 70 percent during the incentive phase. Follow-up rates were considerably higher than baseline.

D. SEEKING INCENTIVES

Incentives were requested for the community campaign from businesses and civic organizations. Many businesses give away samples, prizes etc., as a part of their product promotion. We suggested instead of giving out these products randomly, that they allow HSRC to distribute the products to people wearing seat belts. Thus, they would realize both product promotion and a worthwhile social goal.

A fortunate feature of the campaign was enthusiastic participation of a local media company. They played the major role in public awareness, and also the key role in securing business cooperation.

The media officials arranged two meetings with potential contributors, and the entire 7,500 prizes were subscribed immediately. Prizes included 3,600 free meals at a fast food restaurant, 1,200 six packs of soft drink, 600 T-shirts, etc. The estimated retail value of the incentives was \$4 each. In addition, there was a \$500 drawing each month, and a \$1,000 grand prize. Total prize value was about \$34,000.

E. PUBLIC EDUCATION EFFORTS

1. Media. Three weeks prior to initiation of the incentive phase, the preliminary education phase began. Public service announcements (psa's) were aired on local cable TV, AM radio, and in a bi-weekly advertising newspaper. In addition to psa's, the campaign was covered as news. Several news conferences were held during the six-month campaign, and good coverage was received. Since UNC students were about half the community population, the student newspaper was also a key outlet, publishing stories and ads. Finally, a series of radio psa's was distributed to area radio stations.

2. Literature. A brochure and bumper sticker were developed. The brochure described the "contest" rules, and presented reasons for wearing seat belts. Approximately 70,000 brochures and 15,000 bumper stickers were distributed. As a mid-campaign boost, a flier was mailed to all 19,000+ households in the area. The flier gave contest information, pictured \$500 winners, and portrayed belted local accident victims and their damaged cars.

F. EVALUATION DESIGN

1. Phases. The project had four phases, with belt use data collected throughout:

a. Baseline - Beginning in February 1983, baseline belt data were collected before townspeople knew of the project.

b. Education/Promotion - Next was emphasis of the three major educational themes. The themes were presented on radio and cable TV, and full page ads twice a week in the shopping newspaper. These concerned belt information only -- nothing about the incentive phase.

c. Incentive - The incentive phase began in April 1983. Following a kickoff luncheon, the first incentives were given out amid active press coverage. Thereafter, incentives were awarded twice a day, six days per week until October 1983. Public education efforts continued.

d. Follow-up - Follow-up began October 1983, and will continue for a year. During the follow-up, no incentives are being awarded, but reduced-level publicity continues.

2. Sampling. The dependent variable was driver shoulder belt use in passenger cars so equipped (i.e. non-convertibles "new" enough to have head restraints). Trucks, vans, and utility vehicles were omitted because of inability reliably to determine presence of shoulder belts. (All types of vehicles, however, were stopped for prizes during the incentive phase.)

Belt use was monitored at 17 sites covering every major commuting route into town; downtown and campus areas; cross-town routes, and residential areas.

Observations were made at five times: morning peak and off-peak times, afternoon peak and off-peak times, and on weekends. Baseline data were used to form a stratified sample plan. Belt rates were computed for each Site X Time combination (85 in all). These were ranked by increasing belt use, and the 85 combinations were divided into seven strata such that use rates were homogeneous within strata, but varied considerably between strata. Then, for a week's data collection, we randomly sampled one unit from each of the seven levels. 1500-2000 observations per week were collected. We did not allow incentives to be given out nearby when data were being collected.

3. Reliability of Seat Belt Observations. Success of the evaluation hinged on ability of observers to determine reliably whether belts are worn in passing cars, and to determine driver sex and race.

As a test, seven HSRC observers made simultaneous independent observations of 98 passing vehicles. In all, 2058 judgments were made (98 cars x 7 observers x 3 dimensions (belt, sex, race)). The 17 instances of a

dissenting view among the 2058 observations produced an error rate of about 0.8 of one percent. The largest portion of the discrepancies was with respect to driver sex. Indeed, this is sometimes a difficult judgment, given today's hair styles, clothing, etc. As to belt status, disagreement happened only 3 times out of 686 (0.4 of one percent).

4. Lap Belt Add-On Factor. Shoulder belt use was typically observed from a van parked beside the road. From this position it was not possible to note use of the lap belt only. Special data were therefore collected to estimate additional drivers who were lap belted only. Analysis of the data yielded a lap belt add-on factor of 11 percent (or a multiplier of 1.11). Thus, a shoulder belt use rate of 30 percent would translate into a total restraint use of 33.3 %.

G. RESULTS

1. General. From a baseline use rate of 24 percent, belt use grew steadily throughout the incentive phase and peaked at 41 percent during the final incentive week. Thus, for every 100 belt wearers in the baseline period, there were 171 wearers at the peak -- a 71% increase. The change is, of course, statistically significant. As would be expected, a decrease became evident during the initial weeks of the follow-up period. Belt use fell to 34% about 10 weeks beyond the end of the campaign, rose and held for several weeks at 36%, rose again to 42% for a month, and was about 35% nine months after the incentive phase. This 35% divided out to about 40% for local people vs 30% for "out-of-towners" spotted in the community.

2. Comparison by Driver Sex. Belt use for females was a few percentage points higher than that for males in all but two weeks of the incentive phase, and each showed growth over time. The peak values for both males (40 percent) and females (46 percent) occurred near the end of the incentive phase.

3. Comparison by Race. During the baseline phase, the overall white use rate was 4.4 times the black use rate (27.5 versus 6.2 percent). The white use rate peaked at 47 percent during the last week of the incentive phase, while black use peaked at 20 percent.

4. Belt Use by Smokers. While collecting data we noticed some drivers who were smoking. We could see the cigarette, pipe, etc. The impression was formed that smokers were less often restrained. We decided to formalize this observation. Subsequently, 79 cases were noted in which the driver was seen smoking. In nine cases the driver was belted (11.4 percent). Perhaps "lighting up" competes with buckling up. Or perhaps a smoker's view of risk is more consonant with not using belts.

5. Belt Use in Local Crashes. Another indication of campaign benefits is belt use in local crashes. During the incentive period alone, and counting only Chapel Hill crashes, an additional 150 crash-involved drivers were belted beyond the baseline level. There were likely at least 50 more passengers belted as well. Thus, at least 200 additional occupants were belted in local crashes only. Presumably additional benefits could have been demonstrated if had we been able to verify out-of-town as well a local crashes, and had we been able to do so over 15 months covered by this paper.

G. CONCLUSION

It appears that 10-12% of drivers in the community underwent a long term switch to regular belt use. This would be perhaps 3,000 drivers. Also, there would be change in a certain number of passengers. Thus, it seems likely that a habit change was induced in 10% or more of the population. It is not yet known whether another "round" of campaign effort would change even more people.

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