

TITLE: Post Licensing Control Reporting and Evaluation System (PLCRES): Negligent Operator Program Costs and Effectiveness

Status Report #1:

DATE: October 1976

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REPORT NUMBER: Unnumbered (NRN024)

Status Report #2:

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AUTHOR(S): David W. Carpenter & Raymond C. Peck

NTIS NUMBER: PB81-154270

REPORT NUMBER: Unnumbered (NRN029)

Status Report #7:

DATE: December 1981

AUTHOR(S): Philip Wootton, David W. Carpenter & Raymond C. Peck

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FUNDING SOURCE: Office of Traffic Safety (original development), departmental budget thereafter

PROTECT OBJECTIVE:

To implement and maintain an automated on-line evaluation system for monitoring the effectiveness of negligent-operator programs.

SUMMARY:

This series of reports resulted from an ongoing evaluation system designed to continuously monitor costs and effectiveness of the Department of Motor Vehicles' post-licensing control and driver improvement programs. The effort was originally partially supported through a grant from the Office of Traffic Safety. For the four treatments being evaluated (Warning Letter -W /L, Group Educational Meeting - GEM, Negligent Operator Hearing - I/H, and Probation Violator Hearing - P IV), treatment and control group subjects were selected randomly. The control group subjects did not receive treatment, and the two groups were subsequently compared to determine the effect of treatment on accidents, convictions, progression through the negligent operator program, monetary societal losses prevented by treatment, and DMV funds spent on treatment.

The first PLCRES Status Report indicated that all of the treatments produced a significant reduction in convictions; the GEM and I/H produced statistically significant reductions in accidents but the W /L and P /V did not. However, the latter two programs did have a directionally positive effect, since in both cases the treatment group had fewer accidents. In cost-benefit terms, however, the small (non-significant) accident reduction produced by the W /L was sufficient to generate substantial net benefits, since the cost of the W /L program was very low. GEM and I/H, in addition to producing significant accident reductions, resulted in substantial net benefits. Only P /V, with a rather high unit cost and a small (non-significant) accident reduction, failed to generate net benefits.

The second PLCRES Status Report found the same pattern, with the GEM and I/H producing statistically significant accident reductions; although the treatment groups in W /L and P /V accrued fewer accidents, the observed treatment-control differences were not statistically significant. Again, each treatment showed a statistically significant reduction in convictions. The cost-benefit results in this report were also similar to those reported above, in that all programs other than P /V generated substantial net benefits. Since the number of accidents saved per 1,000 drivers treated in GEM had increased substantially during the second reporting period, GEM showed a substantial increase in net benefits over that found previously.

Because PLCRES Status Report #3 found suggestive evidence of bias in the W/L and P/V groups,

analysis of covariance was used to evaluate the significance of the observed accident reductions. Using this technique, all programs except GEM demonstrated significant reductions in accidents. (GEM had a directionally positive effect, $p < .13$.) The analysis of covariance results indicated that a bias operated in the W/L groups, and that it tended to reduce the effect size observed. The observed bias in the P/V groups was so small as to have no practical effect. Using the survival curve method of analysis (used in both previous reports) all programs produced a significant reduction in convictions, and all but the W/L demonstrated significant accident reductions. In terms of cost-benefit considerations, all programs except P/V were shown in this report to generate considerable net benefits.

The fourth PLCRES Status Report confirmed the previous findings and trends. All four programs significantly reduced convictions and all except the W/L significantly reduced accidents ($p < .02$). Again, the only program not to be clearly cost-beneficial was the P program. However, for the first time, the P/V program showed a (slight) positive cost-benefit result on one of the cost-benefit indices. A decision was made to delete the P/V component from PLCRES and to explore improvements as part of another study (Williams and Hagen, 1981).

The fifth PLCRES Status Report reported on the W/L and GEM only. Both programs significantly reduced convictions and were projected to be cost-beneficial. However, the accident reduction estimates were not statistically significant for either treatment. There was suggestive evidence that the voluntary GEM (adopted in December, 1977) was less effective at reducing accidents than was the mandatory GEM (with license suspension for non-attendance). The I/H and P/V levels were not shown. The I/H had been largely replaced by a new treatment known as Probation by Mail (PBM; see Sherman & Epperson, "A Study on the Feasibility of Placing Selected Negligent Operators on Probation by Mail").

The sixth PLCRES Status Report reported on the W/L, and on the PBM implementation. Results for W/L were consistent with prior findings. For the PBM implementation, drivers were categorized as "nonhigh-risk" or "high-risk" according to their prior driving records. High-risk drivers were assigned to I/H or PBM, with results indicating a significant increase in convictions and a nonsignificant increase in accidents for the PBM group. However, PBM had substantially lower unit costs, so cost-benefit results favored PBM. Benefits did not exceed costs for nonhigh-risk drivers who were assigned to PBM, compared to a no-treatment control group.

The seventh PLCRES Status Report included treatment and control comparisons for the W/L GEM, and nonhigh-risk PBM conditions. The results showed no significant effects on accidents, but the W/L and nonhigh-risk PBM conditions significantly reduced convictions. For the first time since its inception, the GEM condition did not reduce convictions. For high-risk subjects, PBM and I/H were directly compared with each other instead of with controls. The results showed no significant accident or conviction effect differences, indicating that high-risk PBM is as effective as the more costly I/H. The cost-benefit analysis showed that W/L benefits exceeded costs. The high-risk PBM condition was also found to be cost-beneficial when compared to I/H.

However, the GEM and nonhigh-risk PBM treatments were not cost-beneficial. A historical comparison of all status reports revealed a reduction in treatment effectiveness following Status Report #4, with the effect on GEM being the most pronounced.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

Because of the reduction in effectiveness and cost-benefits, the department informed the Legislative Analyst's Office that it was restricting the negligent operator program in an attempt to reduce costs and increase benefits. The new program was developed under the acronym NOTS (Negligent Operator Treatment System). No further PLCRES status reports were produced. A new, ongoing evaluation system was developed for NOTS, and those results were published in another series of ongoing reports.

SUPPLEMENTARY INFORMATION:

Progress Report to the Legislature, Post Licensing Control Reporting and Evaluation System, November 1, 1973, Sandreno A. Marchi, Project Leader; additional progress reports dated April 30,

1974 and December 1, 1975; Report of Implementation, May 31, 1976; Summary Report Volume I, August 30, 1976; Technical Report Volume II, August 30, 1976 with Sandreno A. Marchi as project leader.

Peck, R. c., Toward a dynamic system of driver improvement program evaluation. *Human Factors*, 18(5), 493-506, 1976.

Peck, R. C., & Kadell, D. J. The California post-licensing control reporting and evaluation system. *Proceedings of the symposium on traffic effectiveness (impact) evaluation projects*. National Highway Traffic Safety Administration and National Safety Council. Rosemont, Illinois, May 19-21, 1981.

Received NHTSA's Award of Merit in recognition of contribution to *Traffic Safety Evaluation Research Literature*, 1982.

Peck, R. C., & Kadell, D. J. California's post-licensing control reporting and evaluation system--A summary of the first three years of results. *Traffic Safety Evaluation Research Review*, 2(2), 7-21, 1983.