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TITLE: Design and Evaluation of a Crash Prediction Strategy

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AUTHOR(S): Edward J. McConnell & Roger E. Hagen Administration

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PROJECT OBJECTIVE:

To define and validate a method of identifying groups of high-risk drivers which yields a more effective crash prediction model than the Department's negligent-operator (neg-op) point system.

SUMMARY:

Based on a 3-year driver record, five high-risk groups were identified from a sample of over 250,000 licensed drivers. These high-risk groups included drivers with various combinations of major and minor traffic convictions. For each of the five groups, a regression equation was derived to maximize the prediction of accident involvement in a future 3-year period. These equations were then cross-validated on an independent sample which met the risk-group definition. The drivers identified as being high-risk by this approach were compared to drivers identified as being high-risk using two alternative regression equations and the neg-op point approach. While the high-risk group approach proved more effective than the neg-op point approach in predicting future accidents, the regression equations using the weighted sum of all convictions and all accidents were even more effective as crash-prediction models. Based on these findings, the authors recommended implementation of a regression equation model using weighted accident and conviction data as the optimal system for selecting high-risk drivers for post-licensing control actions.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

The Department's negligent-operator point system was modified to incorporate some of the recommended improvements. Specifically, some previously noncountable violations were moved to the one-point category and a larger proportion of accidents were assigned points.

SUPPLEMENTARY INFORMATION:

None available.