

noted in our paper, discharge rates are only proxy measures of incidence and subject to multiple counting of cases because of readmissions. Although we excluded hip fracture discharges where certain complications or a transfer to another short-stay hospital was indicated, the NHDS does not collect readmission information and therefore there is almost certainly double counting of some unknown number of cases because of readmission for the same fracture. Before concluding that the incidence of hip fracture in Rochester is representative of the US, it would be useful to compare the hip fracture discharge rates for Rochester residents using the same methods we used. Such an analysis would greatly aid our understanding of the relationship of discharge rates to incidence.

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## 65 mph Speed Limit on Rural Interstates

The analysis of the 65 mph speed limit presented in the October 1989 issue<sup>1</sup> did an excellent job of exposing the futility of applying pure statistical analyses to questions where important variables are in a constant state of flux and reliable base data for those variables are not available.

For example, changes in trip purpose and related impacts on vehicle occupancy can significantly increase per person accident exposure without being reflected in vehicle miles traveled. Vehicle miles traveled on 65 mph rural interstates frequently doubled the rate experienced on the highway system as a whole. If the preponderance of this increase was recreation/tourism-oriented, it is reasonable to assume per vehicle occupancy rates (i.e., increased accident exposure) increased significantly.

A number of factors including prolonged prosperity, high employment, US dollar vs foreign currency relationships, and unusually warm dry weather all strongly suggest a surge in recreation/tourism travel, of which the 65 mph rural interstate highways are principal recipients.

While the authors discount the importance of state level studies that contradict their conclusions, it should be recognized that the small data bases that handicap straight statistical analysis do allow the luxury of more accident-specific observations. When looked at individually, the actual accidents most often suggest that excessive speed in general and the 65 mph speed limit specifically were not major contributing factors in rural interstate accidents. Even when isolating accident severity, it is difficult to make a serious attack on the 65 mph speed limit. Average and 85th percentile speeds have only increased 2 mph, not enough to significantly increase accident impact speeds.

### REFERENCE

1. Baum HM, Lund AK, Wells JK: The mortality consequences of raising the speed limit to 65 mph on rural interstates. *Am J Public Health* 1989; 79:1392-1395.

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## Dr. Baum, et al, Respond

James J. Baxter, president of an organization advocating higher speed limits, complains of the "futility of applying pure statistical analyses to questions where important variables are in a constant state of flux and reliable base data for those variables are not available." However, in place of "pure statistical analyses," Baxter offers only unsubstantiated suppositions and uncritical analysis.

For example, Baxter argues our conclusion that 65 mph limits have caused 15 percent more fatalities on rural interstates is contradicted by "more accident-specific observations" found in police crash reports that do not indicate that the speed limit was a contributing factor. However, crash reports are designed to indicate legal responsibility, not causality, and officers cannot hold the posted speed limit responsible for a crash. Hence, Baxter's "specific observations" are irrelevant.

Baxter supposes, without evidence, that much or all of the additional fatalities observed on rural interstates resulted from increased tourist travel associated with an improving economy. If so, the increase in fatalities should have occurred gradually from 1982, the depths of the recession, through 1987;

yet, the ratio of fatalities on rural interstates to other roads increased dramatically only after adoption of the 65 mph limit.<sup>1</sup> In an apparently related, but nonsensical sentence, Baxter claims that "vehicle miles traveled [VMT] on rural interstates frequently doubled the rate experienced on the highway system as a whole." Assuming this sentence refers to changes in VMT as an exposure measure, we note that National Highway Transportation Safety Administration (NHTSA) has subsequently estimated that fatalities during 1987 were 16 percent greater than expected on 65 mph highways, even after controlling for VMT.<sup>2</sup>

Baxter asserts that speeds on rural interstates did not increase enough (only 2 mph on average) to have caused the reported fatality increase. Baxter cites no source, however, and there is evidence that speeds increased much more in some states.<sup>3</sup> More importantly, mean speed changes do not reflect changes in the frequency of very high speeds. For example, from 1986 to 1988, the percent of vehicles exceeding 70 mph on rural interstates almost tripled (6 vs 16 percent) in states raising the limit.<sup>4</sup> In New Mexico, the percentage of cars exceeding 70 mph quadrupled (5.1 vs 22.2 percent) during the first year after the limit was raised.<sup>3</sup> Thus, the 65 mph limit has greatly increased the frequency of vehicles traveling at very high speeds, and these vehicles are at a much greater risk of being in a severe crash.<sup>5</sup>

While Baxter has been defending the 65 mph limit with these specious arguments, new data indicate that the fatality increase caused by 65 mph speed limits was even greater in 1988 than 1987.<sup>4,6</sup> It is time for Baxter, his organization, and others to recognize that higher speeds on even our best highways extract a severe price in terms of additional deaths and injuries.

### REFERENCES

1. Baum HM, Lund AK, Wells JK: The mortality consequences of raising the speed limit to 65 mph on rural interstates. *Am J Public Health* 1989; 79:1392-1395.
2. National Highway Traffic Safety Administration: The effect of the 65 mph speed limit during 1987: A report to Congress, January 1989. Washington, DC: US Department of Transportation, January 1989.
3. Freedman M, Esterlitz J: The effect of the 65 mph speed limit on speeds in three states. Washington, DC: Insurance Institute for Highway Safety, July 1989.
4. National Highway Traffic Safety Administration: Report to Congress on the effects of the 65 mph speed limit through 1988. Washington,