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NEWS RELEASE

Speed Kills, But on Interstates, Speed Variance Is More Deadly

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BUFFALO, N.Y. -- Texas recently raised the speed limit on a portion of its interstate highway to 80 mph. Based on the mantra "Speed Kills," fatalities on that West Texas roadway should climb.

"Not so fast," say emergency medicine researchers in the Center for Transportation Injury Research and Calspan University at Buffalo Research Center (CUBRC).

"'Variance Kills,' would be a more accurate slogan."

The difference in speeds, or "variance," among vehicles traveling on the same roadway, plus the difference between the posted speed and what is known as "design speed" increases the risk of accidents, not speeds alone, they reported recently at the American College of Emergency Physicians' Research Forum in New Orleans.

The research suggests that consideration should be given to setting speed limits based on topography -- rather than having one standard speed limit -- for stretches of interstate highways outside of high-population areas.

Design speed refers to the maximum speed a vehicle can maintain safely based on conditions and the road's topography: A curved road would have a lower design speed than a straight road, and a flat road would have a higher design speed than a hilly road.

"If the roadway's design and weather conditions allow cars to travel safely at 80, but the posted speed is 55, some people will observe the speed limit, while some will drive at 75 or 80," said Dietrich Jehle, M.D., associate professor of emergency medicine in the UB School of Medicine and Biomedical Sciences, and first author on the study.

"In that situation there will be a lot of weaving in and out of

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Topography, rather than speed, is the more important factor in traffic accidents, according to UB's Dietrich Jehle, associate professor of emergency medicine. [Download JPEG](#)

Contact
John DellaConrada
dellacon@buffalo.edu
716-645-4601

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traffic, more crashes and more fatalities," noted Jehle, who also is director of emergency services at Erie County Medical Center in Buffalo.

"But when the speed limit is 65 on a roadway with design speed of 80, some people will drive at 62 and some will drive at 75 or 80," he continued. "When all cars are traveling at fairly similar speeds, there is less variance and fewer accidents."

The study was based on the number of fatalities and vehicle miles traveled on individual roadways extracted from New York State Department of Transportation reports.

Absolute mortality decreased by 28.3 percent on the New York State Thruway, the primary focus of the study, when the speed limit was raised from 55 miles per hour to 65 miles per hour., the study found. Adjusted for vehicle miles traveled, there was a 42.5 percent decrease in mortality.

Supporting the importance of speed variance in fatalities, the percentage of traffic traveling more than 10 miles over the speed limit dropped from 39 percent to 8 percent when the speed limit increased from 55 mph to 65 mph on the Thruway, results showed. Total accident rates and injury rates also declined slightly. Over this same time period, traffic volume on New York State interstates increased by 13 percent.

To control for improvements in auto design over the time period studied, which may have made cars safer, the researchers also studied fatalities on major roads where the speed limit did not change. On those roads, fatalities increased 20.7 percent during the three years after the speed limit was raised on interstates.

Drivers on New York interstates apparently are not vigilant about design speed, however. On flat roads, mortality dropped by 30.2 percent after the speed limit increased, but on mountainous roads mortality increased by 17.6 percent.

Jehle noted that in individual crashes, the faster the vehicles are traveling the greater the fatality rate, whereas speed variance increases overall fatality rates.

"The message here for those responsible for highway safety is that factors other than absolute speed are important," said Jehle, "Variance in speed and road topography both play a major role in crash fatalities on interstate highways.

"Given these findings, it might be a good idea to set speed limits based on topography on stretches of interstates outside of high population areas, rather than having one standard speed limit," said Jehle.

Sarah Connolly, M.D., an emergency medicine resident, and Michael Godzala, UB medical student, also contributed to the study.

The research was supported by a grant from the Federal Highway Administration.

The University at Buffalo is a premier research-intensive public university, the largest and most comprehensive campus in the State University of New York. The School of Medicine and Biomedical Sciences is one of five schools that constitute UB's Academic Health Center.