VITALS
A Weekly Safety Newsletter For Medical Transport Professionals

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Car-crash Epidemiology And Other Perspectives

Jin Huiqing is Chinese physician scientist who views crashes as a disease. He has studied crashes so extensively that he has developed a sufficient body of information that there is now a college degree program in traffic accident prevention at Anhui Sanlian College in China. One of Jin's studies provides some really fascinating information.

Jin studied data based on 17,124 registered drivers and found that 6% to 8% were multiple offenders. In fact, they caused 40% of crashes involving more than one vehicle. He found that accident –prone drivers, defined as those causing three or more accidents in five years, have lower levels of two neurotransmitters, dopamine and serotonin, than controls. They also score poorly on tests measuring everything from depth perception to night vision and attitude toward risk-taking.

Using this information, Jin developed "Three Lines of Defense" and implemented them in the Jinan Province. Truck drivers and other professional drivers are screened by written tests and physical exams, which in addition to "standard issues," address visual acuity and mental alertness. Simulators and practical, real-world driving exercises are used to train drivers and correct bad driving habits. Cameras are used to monitor dangerous intersections, road conditions, drivers' behavior and road safety. Do the three lines of defense work?

The number of private cars in Jinan rose from 929,000 in 2006 to more than 1.2 million is 2010. The annual death toll fell from 343 to 263. That's a rate-adjusted 42% decrease in fatalities. Interestingly, although there are more than 100 crashes in Jinan every day, there has not been a crash in the last five years with more than one fatality.

Jin has performed a "genome-wide association study" in which he has discovered three genes that may have a link to accident prone driving. Of course, unraveling genetic susceptibility to behaviors is complicated and challenging.

It's commonly thought that in order to get people to act differently one must change their attitude or motivation. Behavioral Based Safety (BBS) takes a different approach. It changes the behavior first then changes attitude and motivation. For example, industrial psychologists might be used to identify critical behaviors, then a program is developed to change the behavior. On the other hand, such complexity is not always required. Look at seat belt use.

There are still EMS and Medical Transportation Providers who don't wear seat belts. This is a failure of both management and personnel. It creates an unsafe culture. A BBS program which is enforced by everybody creates social support for safety. If a driver won't drive unless everybody is belted and recalcitrant, and non-belters are given the chance to be counseled and coached before they are terminated for non-compliance, won't everyone eventually comply? What other safety issues can you address with a BBS program?