This study performed a preliminary analysis of the cumulative on-road safety record of self-driving vehicles for three of the ten companies that are currently approved for such vehicle testing in California (Google, Delphi, and Audi). The analysis compared the safety record of these vehicles with the safety record of all conventional vehicles in the U.S. for 2013 (adjusted for underreporting of crashes that do not involve a fatality).

Two important caveats should be considered when interpreting the findings. First, the distance accumulated by self-driving vehicles is still relatively low (about 1.2 million miles, compared with about 3 trillion annual miles in the U.S. by conventional vehicles). Second, self-driving vehicles were thus far driven only in limited (and generally less demanding) conditions (e.g., avoiding snowy areas). Therefore, their exposure has not yet been representative of the exposure for conventional vehicles.

With these caveats in mind, there were four main findings. First, the current best estimate is that self-driving vehicles have a higher crash rate per million miles traveled than conventional vehicles, and similar patterns were evident for injuries per million miles traveled and for injuries per crash. Second, the corresponding 95% confidence intervals overlap. Therefore, we currently cannot rule out, with a reasonable level of confidence, the possibility that the actual rates for self-driving vehicles are lower than for conventional vehicles. Third, self-driving vehicles were not at fault in any crashes they were involved in. Fourth, the overall severity of crash-related injuries involving self-driving vehicles has been lower than for conventional vehicles.