Promising Research for Improved Heavy Vehicle Underride Prevention Structures and Data to Demonstrate Boundaries of Occupant Survivability in Collisions Between Large Trucks and Passenger Vehicles

Current truck underride regulations too often do not prevent underride crashes—which led to 228 recorded crash fatalities in 2014. http://annaleahmary.com/2016/04/truck-underride-fatalities-chart-from-the-fars-1994-2014/truck-underride-fatalities-1994-2014/

After losing our two youngest daughters, AnnaLeah (17) and Mary (13), due to a truck underride crash on May 4, 2013, our family has taken on the goal of improving the regulatory and voluntary standards for currently weak and ineffective truck underride guards. On May 5, 2016, we were co-sponsors, with IIHS and the Truck Safety Coalition, of an Underride Roundtable.

One of the presenting groups was a Virginia Tech Engineering Senior Underride Design Team. One year ago, I contacted their advisor, Jared Bryson, and we initiated the proposal for their project. The students were enthusiastic about a goal which engaged them in a life-saving pursuit.

We have put out another call to engineering students and professionals encouraging them to take on the challenge of solving this decades-old problem by creating an underride prevention system that will surpass the current U.S. and Canadian standards. Key design interests include offset impact, misaligned vehicle paths, and occupant survivability. Design is based upon a light passenger vehicle and dry van semitrailer interaction.

The objective of research projects would be to attain underride prevention up to 50 mph at any degree of offset. The designs must be demonstrated to be practical in the context of the trucking environment. The hoped-for outcome is saved lives. Of **primary interest** is setting to rest the decades-old controversy over whether guards can be "too rigid" and thus lead to fatalities from deceleration forces.

1. If so, at what speed would that occur?
2. Further, what would be the optimum energy absorption solution for inclusion in the underride prevention system to provide additional protection to the passenger vehicle occupants beyond the crashworthiness of their own vehicle?

Researchers are encouraged to collaborate with medical, public health, & injury prevention specialists. It is truly a matter of life & death. Please read my posts explaining this further:

- http://annaleahmary.com/2016/06/international-call-for-underride-research-re-injury-prevention-energy-absorption-issues/
- http://annaleahmary.com/2016/06/knights-of-the-underride-roundtable-finding-some-common-ground-to-protect-travelers/

For more information about underride issues go to: http://annaleahmary.com/underride-guards/

Research results will be compiled, together with past research, into a paper for presentation at future Underride Roundtables and submitted for consideration to the *First International Roadside Safety Conference* being held in June 2017 in San Francisco, California, as well as being made available to the international engineering community. It is anticipated that global harmonization of underride protection standards would be furthered by this research.