

Log Truck Accidents in the United States

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Study Rationale

- Log trucking is a critical link to the forest products supply chain!
- A shortage of available and reliable transportation from landing to mill could be a threat to the forest products supply chain.
- Currently only 5 national insurance companies cover log trucks in their policies (FRA 2017).
- Better understanding of log truck accidents can help improve safety training programs.



Previous studies

- Mechanical failure rates in log trucks are lower today than before 1991 when trucks became subject to random roadside inspections (Greene et al 2007)
- Accidents per million tons of wood in Georgia increased from 11 in 1991 to 19 in 2003 (Greene et al 2007)
- 8% of all logging accidents from 1986 to 1998 were transportation related (Lefort et al 2008)
- Focus group of logging supervisors and crew members identified log truck related incidents as primary source of risk for injury and death on logging work sites (Conway et al 2016)

Objectives

- Characterize log truck accidents in the US.
- Determine differences between log truck accidents as compared to other trucks.
- Use the results of this study to guide future research and training programs.



Methods

- Acquire publicly available accident datasets and query out all accidents involving log truck
- Perform descriptive statistics and assess trends over time
- Statistical analysis where possible
 - Season/month
 - Time of day



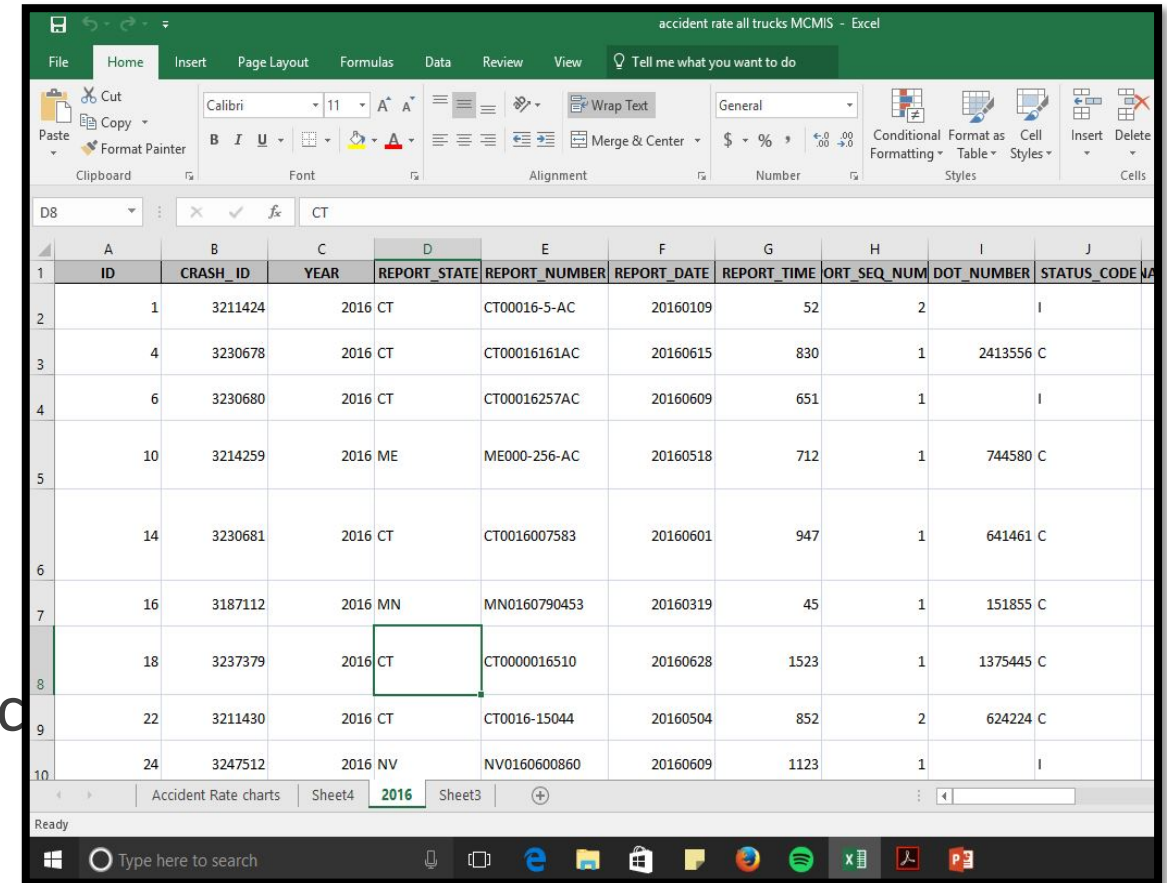
Collaboration: TEAM Safe Trucking



- We are working in cooperation with TEAM safe trucking to better understand log truck accidents.
- TEAM was:
 - Formed in 2015
 - Non-profit volunteer group seeking to elevate the standard and performance of the American forest industry's log trucking sector.
 - Cooperative effort between: Timber producers, timber consumers, insurance companies and associations.
- **Mission Statement:** To reduce accidents through enhanced driver training and effective fleet management and to recruit new, safety-focused drivers to deliver a sustainable and profitable supply chain"

Data Sources

- 2 federally maintained accident databases
- Fatality Analysis Reporting System (FARS) maintained by Federal Motor Carrier Management Safety Administration (FMCSA)
- Motor Carrier Management Information System (MCMIS) maintained by National Highway Traffic Safety Administration



	A	B	C	D	E	F	G	H	I	J
	ID	CRASH_ID	YEAR	REPORT_STATE	REPORT_NUMBER	REPORT_DATE	REPORT_TIME	ORT_SEQ_NUM	DOT_NUMBER	STATUS_CODE
1										
2	1	3211424	2016	CT	CT00016-5-AC	20160109	52	2		I
3	4	3230678	2016	CT	CT00016161AC	20160615	830	1	2413556	C
4	6	3230680	2016	CT	CT00016257AC	20160609	651	1		I
5	10	3214259	2016	ME	ME000-256-AC	20160518	712	1	744580	C
6	14	3230681	2016	CT	CT0016007583	20160601	947	1	641461	C
7	16	3187112	2016	MN	MN0160790453	20160319	45	1	151855	C
8	18	3237379	2016	CT	CT00000016510	20160628	1523	1	1375445	C
9	22	3211430	2016	CT	CT0016-15044	20160504	852	2	624224	C
10	24	3247512	2016	NV	NV01600600860	20160609	1123	1		I

Crash Databases

FARS (Fatality Analysis Reporting System)

- Census of fatal crashes involving motor vehicles traveling on public roadways.
- FARS is recognized as the most reliable national crash database, but it contains information only on fatal crashes.
- Information on: accident, vehicle, all persons involved.

Crash Databases continued

MCMIS (Motor Carrier Management Information System)

- Contains data on trucks and buses in crashes that involve a truck, used for commercial purposes, with a GVWR >10,000 pounds, or carrying hazardous material
- The crash must result in at least:
 - one fatality
 - one injury involving immediate medical attention away from the crash scene,
 - one vehicle disabled as a result of the crash and transported away from the crash scene (towaway)
- Intended census of trucks and buses involved in fatal, injury, and towaway crashes; however, some states do not report, and reporting may not be consistent in some states

Crash databases continued

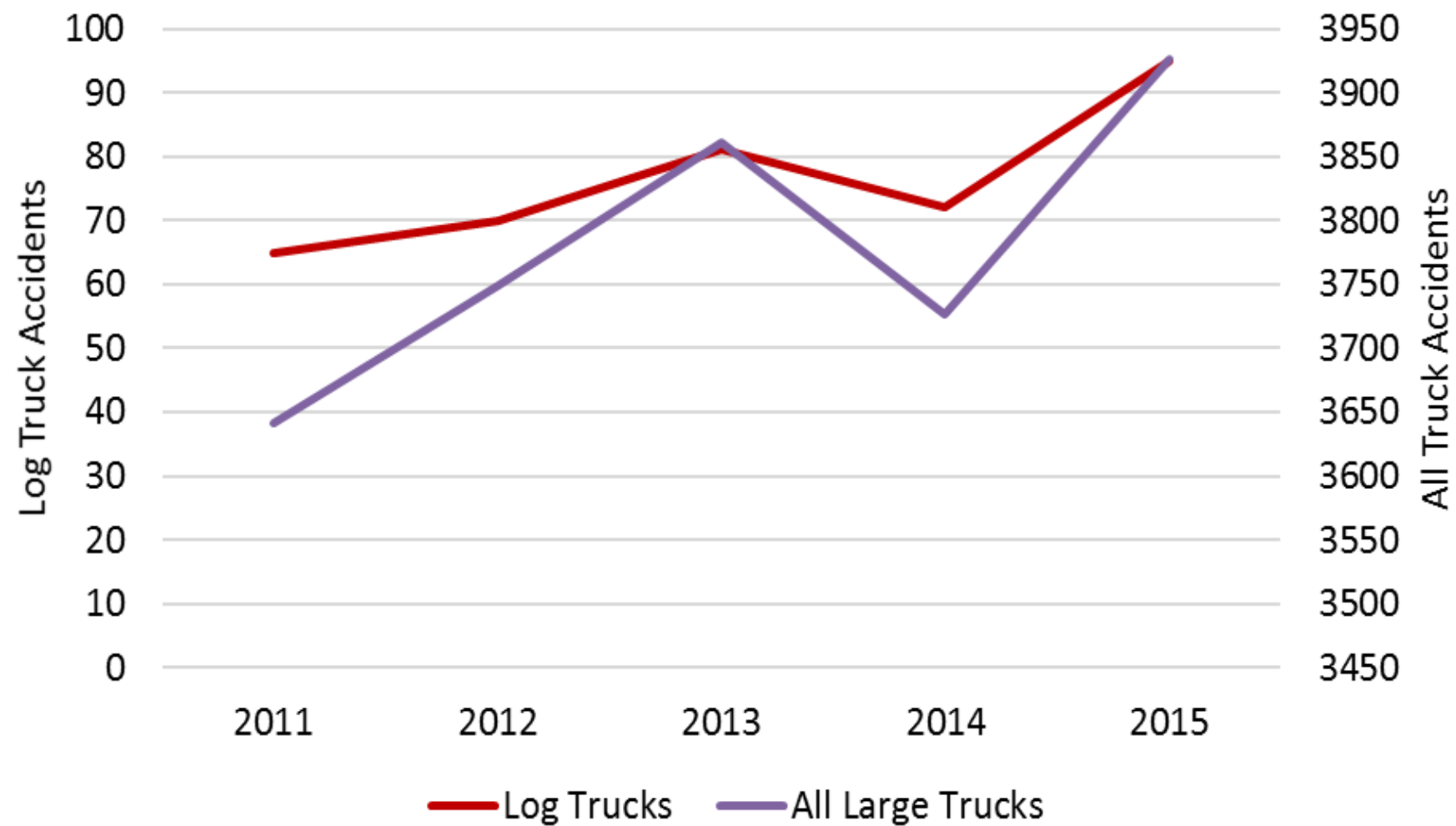
- TOTAL:

- 2007-2015: 576 Fatal Log truck accidents (FARS database)
- 2007-2016: 11,014 Injury causing or property damage crashes (MCMIS database)
- Total Records: 11,590 records spanning years 9-10 years

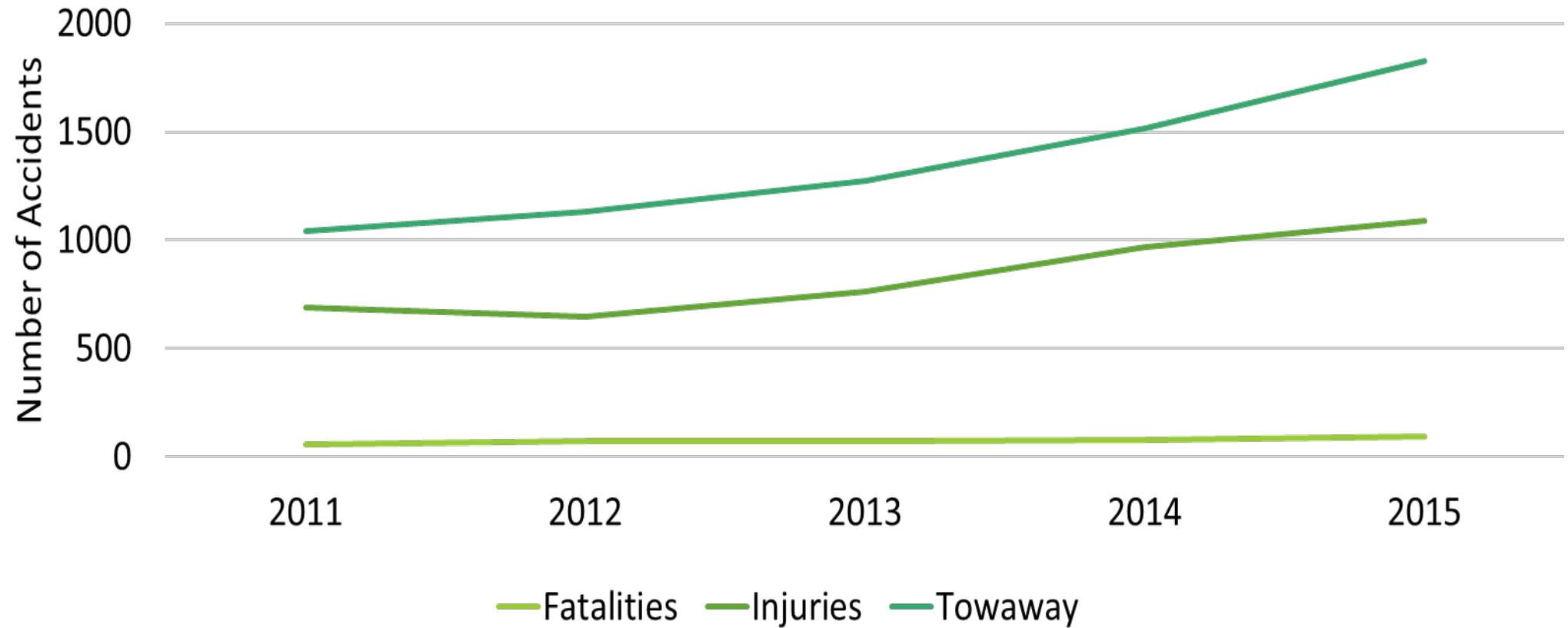
The following are preliminary results based on initial evaluation of the databases.



Fatal Truck Accidents in the United States

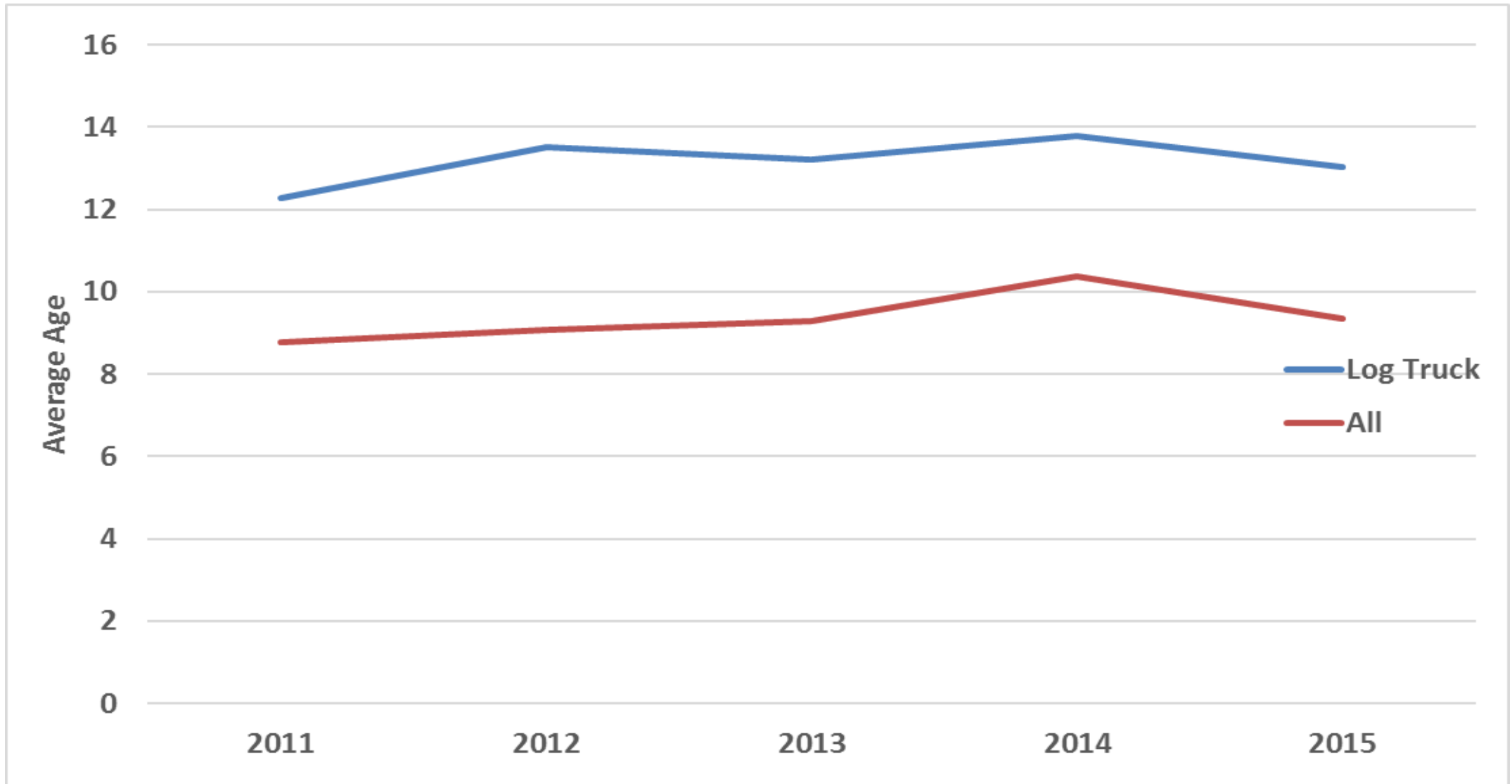


Log Truck Accidents over a 5 Year Period



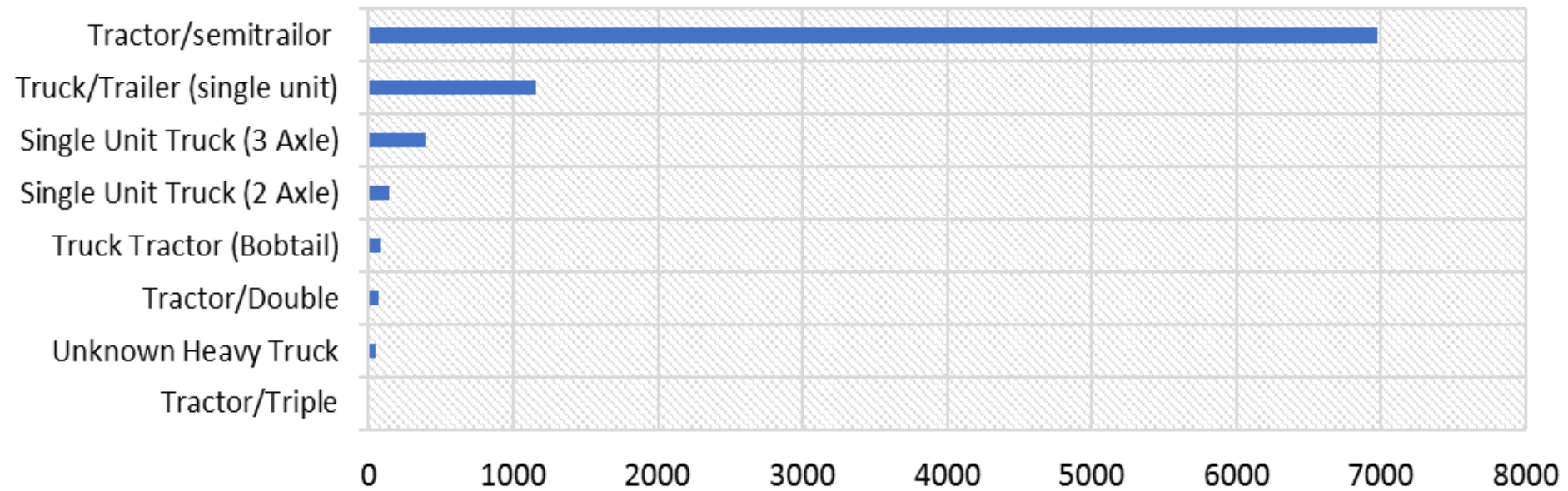
Mean Vehicles Age for Large Trucks involved in a Fatal Accident						
Year	2011	2012	2013	2014	2015	All Years
Cargo Body Type						
Log	12.3	13.5	13.2	13.8	13.0	13.2
Dump	11.7	12.2	13.2	13.9	12.5	12.7
Pole-Trailer	10.6	10.8	10.5	11.9	10.7	10.9
Concrete Mixer	9.8	10.6	11.2	11.4	10.5	10.7
Grain, Chips, Gravel	9.7	9.0	10.5	11.8	12.0	10.6
Flatbed	8.8	8.9	9.1	10.1	10.2	9.4
Vehicle Towing Another Vehicle	6.7	8.5	6.8	12.1	7.2	8.3
Auto Transporter	7.0	8.1	9.1	9.3	6.7	8.0
Bus	7.2	8.0	8.4	9.2	7.7	8.1
Garbage	7.6	8.2	7.8	8.2	8.7	8.1
Intermodal Container Chassis	8.8	7.1	7.7	8.0	9.7	8.3
Cargo Tank	7.1	6.6	6.9	8.0	6.4	7.0
Van/Enclosed Box	6.6	6.6	6.3	7.2	6.2	6.6
AVERAGE FOR ALL TYPES	8.8	9.1	9.3	10.4	9.3	9.4

Average Age of Log Trucks Compared to All Trucks



First Harmful Crash Event	FATALITIES	INJURIES	TOWAWAY
Collision w/ motor vehicle in transport	78%	64%	51%
Ran off road	7%	14%	21%
Cross median/centerline	7%	6%	4%
Collision w/ pedalcycle	2%	0%	0%
Collision w/ Fixed Object	2%	1%	2%
Other (collision)	2%	2%	3%
Collision w/ pedestrian	1%	0%	0%
Collision w/ parked vehicle	1%	1%	1%
Jackknife	0%	1%	1%
Rollover	0%	5%	8%
Downhill runaway	0%	0%	0%
Cargo loss or shift	0%	2%	3%

Vehicle Configuration for Log Trucks over 5 Years (2011-2015)



Vehicle Configuration

Bus (9-15 Seats, Including Driver)



Bus (16 or More Seats, Including Driver)



Single-Unit (2 Axles, 6 Tires)



Single-Unit (3 or More Axles)



Truck/Trailer (Single-Unit Truck Pulling a Trailer)



Truck Tractor (Bobtail)



Tractor/Semi Trailer (One Trailer)



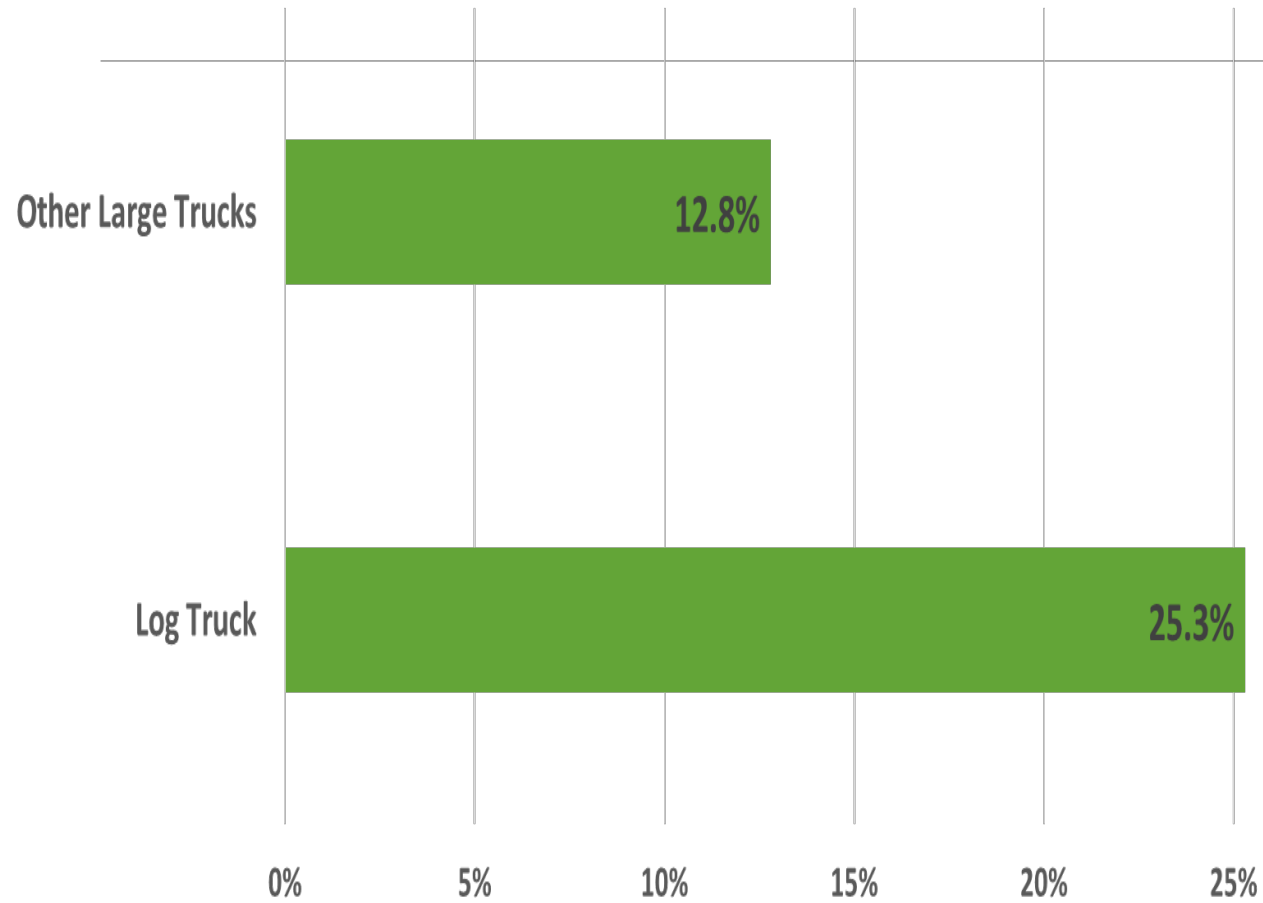
Truck Tractor/Double (Two Trailers)



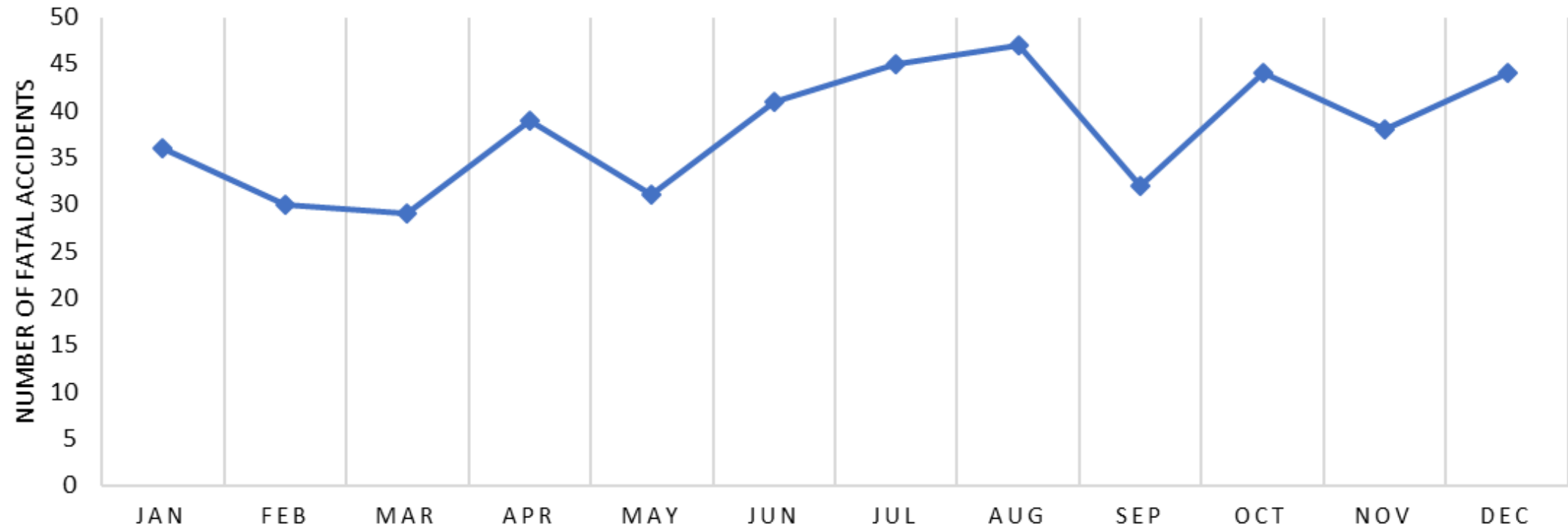
Truck Tractor/Triple (Three Trailers)



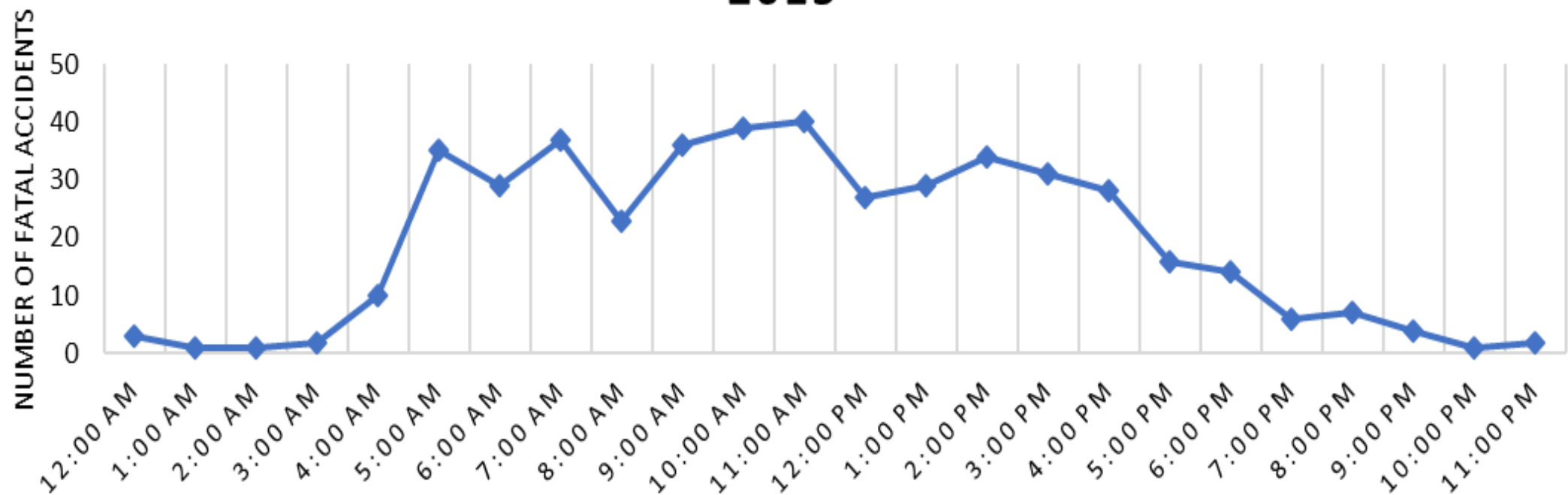
Proportion of Vehicles that Experienced a Rollover During Fatal Accident (2011-2015)



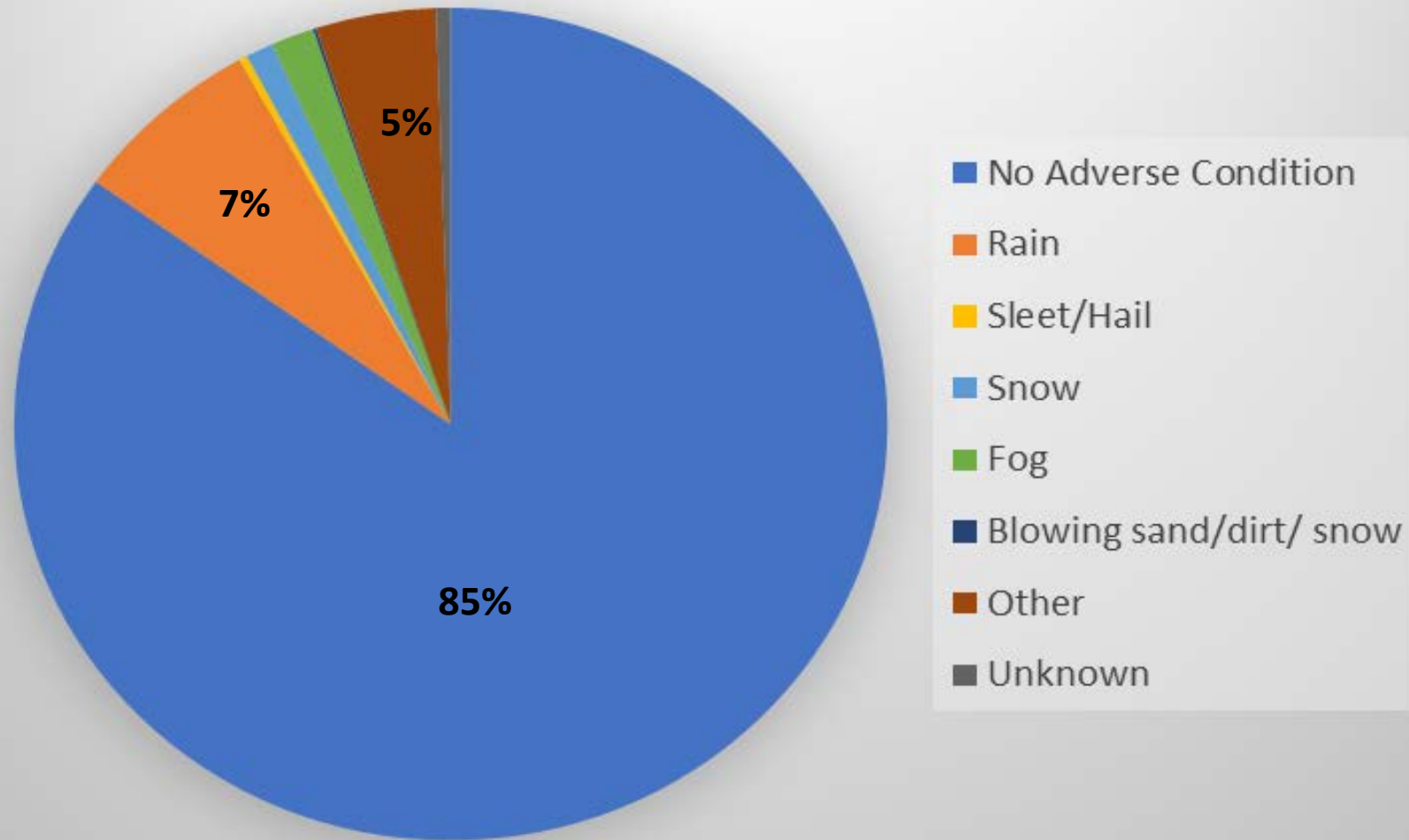
FATAL LOG TRUCK ACCIDENTS BY MONTH 2011-2015



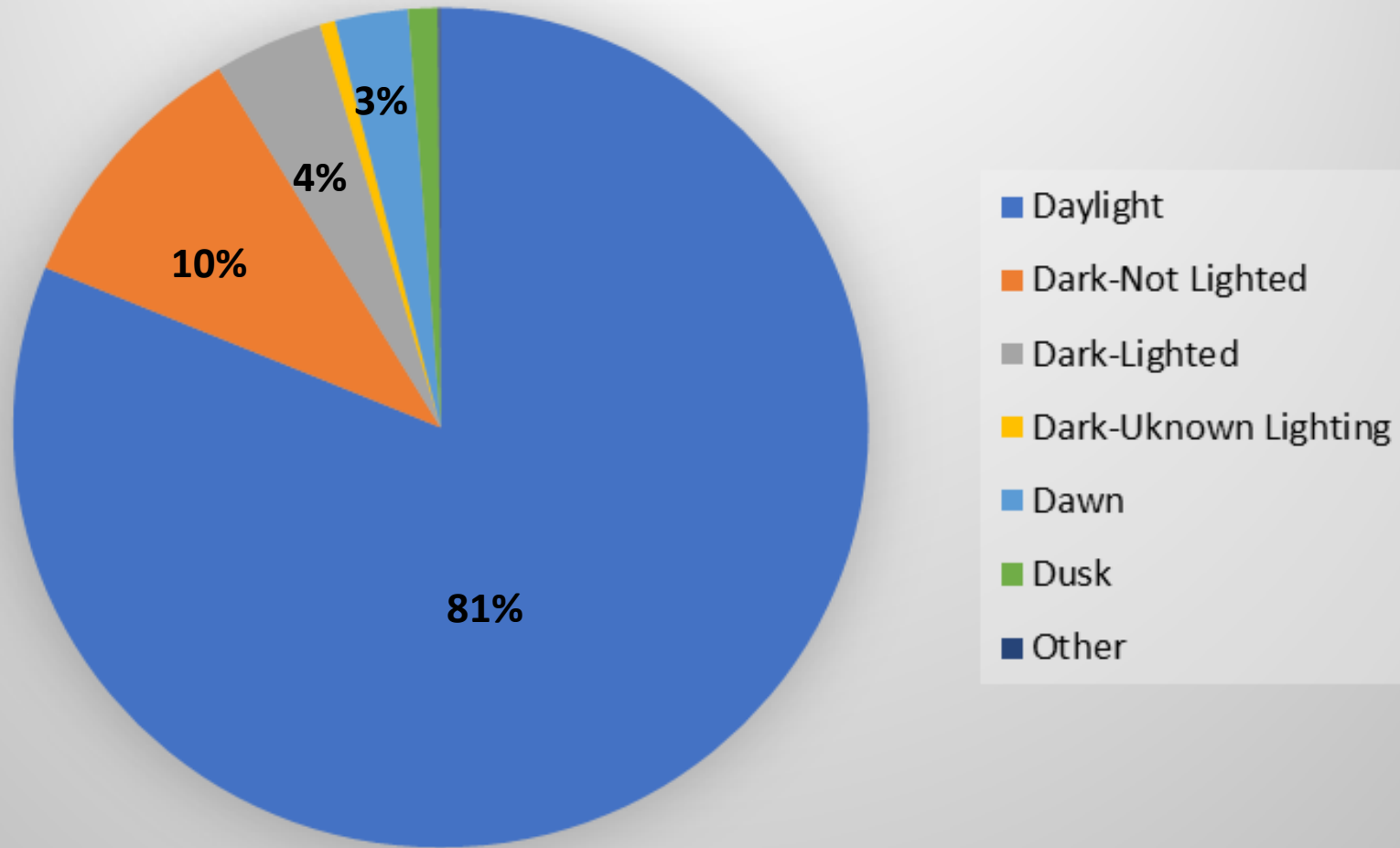
FATAL LOG TRUCK ACCIDENTS BY TIME OF DAY 2011-2015



Weather Condition at Time of Log Truck Accident (2011-2015)



Light Condition During Log Truck Accidents (2011-2015)



Summary

1. Federal databases can be used to show the general characteristics and number of log truck accidents reported
2. Determining an accident rate is difficult
 - Better reporting?
 - More industry activity?
 - Or is the log truck accident rate actually going up?



Summary continued

3. Data do show some differences

- Log trucks appear to have higher rollover occurrences
- Log trucks have the highest average age of all trucks on the road

4. Using data from these databases can help identify areas where further research can be focused.

Questions?

