



“Fatal Oil and Gas Transportation Incidents: Information from a new Source”

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Research on Oil and Gas Transportation Incidents

- Leading cause of death
- Occupants of pickup trucks (51.5%)
- No seatbelt (38%) or Ejected (12%)
- Increased risk: workers of small establishments and service companies



We need more information

- This data linkage project is first glimpse into Motor Vehicle Crash data set for occupational fatalities;
- Oil and gas is first industry sector



Data Sources: Fatality Analysis Reporting System (FARS)

- Census of police-reported traffic crashes involving
 - motor vehicle travelling on traffic way open to the public, and,
 - death of a motorist or non-motorist within 30 days of crash
- Hierarchical data system: incident-, vehicle-, and person-level data.
- Work-relatedness based on “injury at work” item in death certificate.



Data Sources :

Census of Fatal Occupational Injuries (CFOI)

- Provides counts of all fatal work injuries in the U.S.
 - Analysis limited to highway incidents
 - “those occurring on that part of public highway, street, or road normally used for travel ... where at least one vehicle was in regular operation...”
- Collects data on decedents
 - industry/occupation/employment history
 - demographic characteristics
 - injury case characteristics





Methods: Matching Procedures

- 2011-2014 CFI and FARS data files matched at person level.
 - Fars data preparation
 - CFI data
- Three levels of matches
- Comparative analysis between subsets to identify systematic differences



Cases Matched: All fatal FARS and CFOI Roadway

	Total cases: fatal FARS	Total Cases: CFOI Roadway	Matched cases	Unmatched CFOI Roadway
2011	28,136	1,103	975	128
2012	29,108	1,153	1,047	106
2013	28,139	1,099	991	108
2014	27,948	1,157	1,047	111



New expanded data set

- The matched data allows for unprecedented detail
 - CFOI employment
 - NAICS, SOC, ownership
 - CFOI and FARS decedent demographics
 - FARS accident details
 - Road circumstances, driver record, driver impairments and distraction, vehicle details, restraint use, etc.



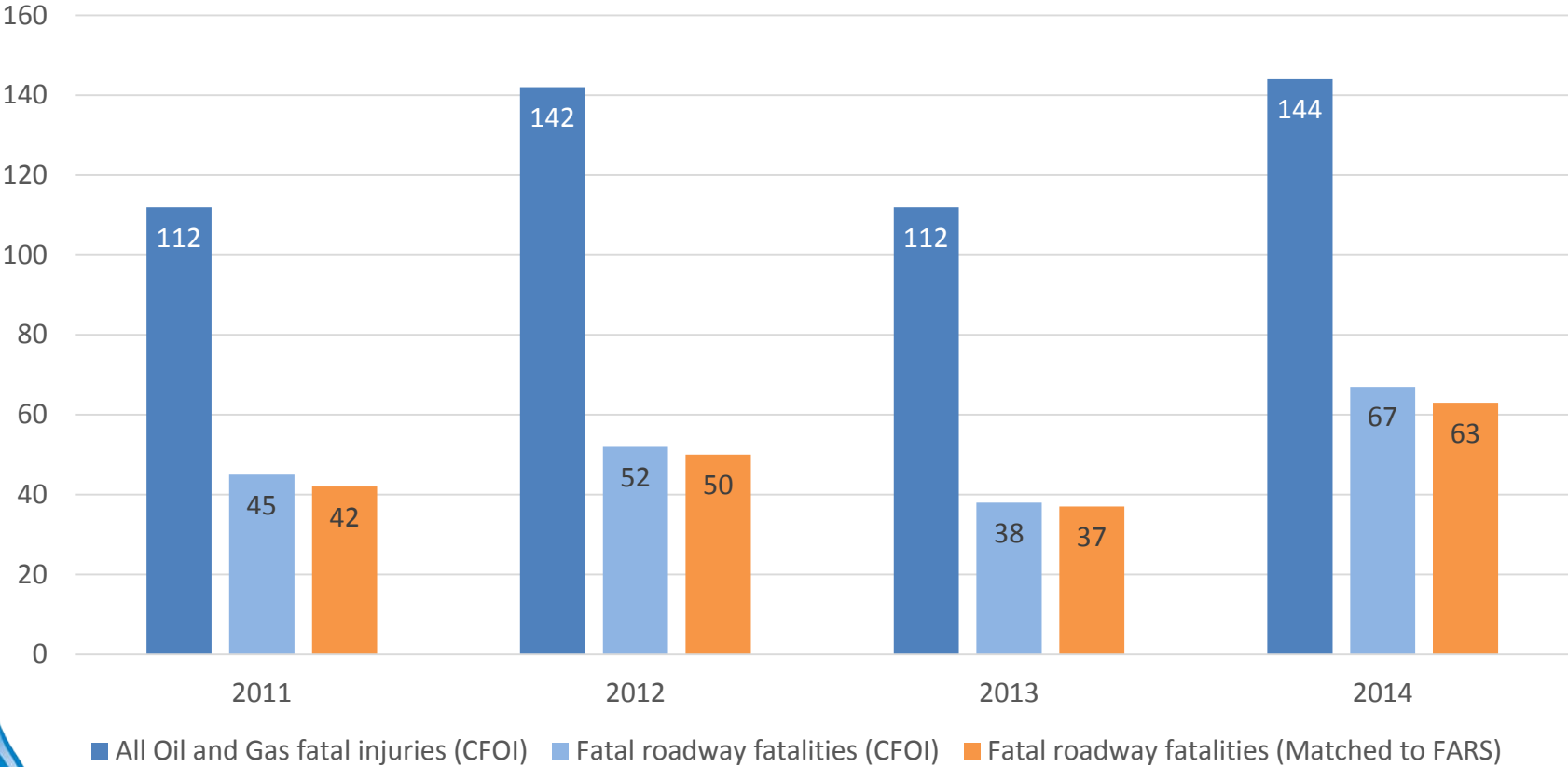
Results: General



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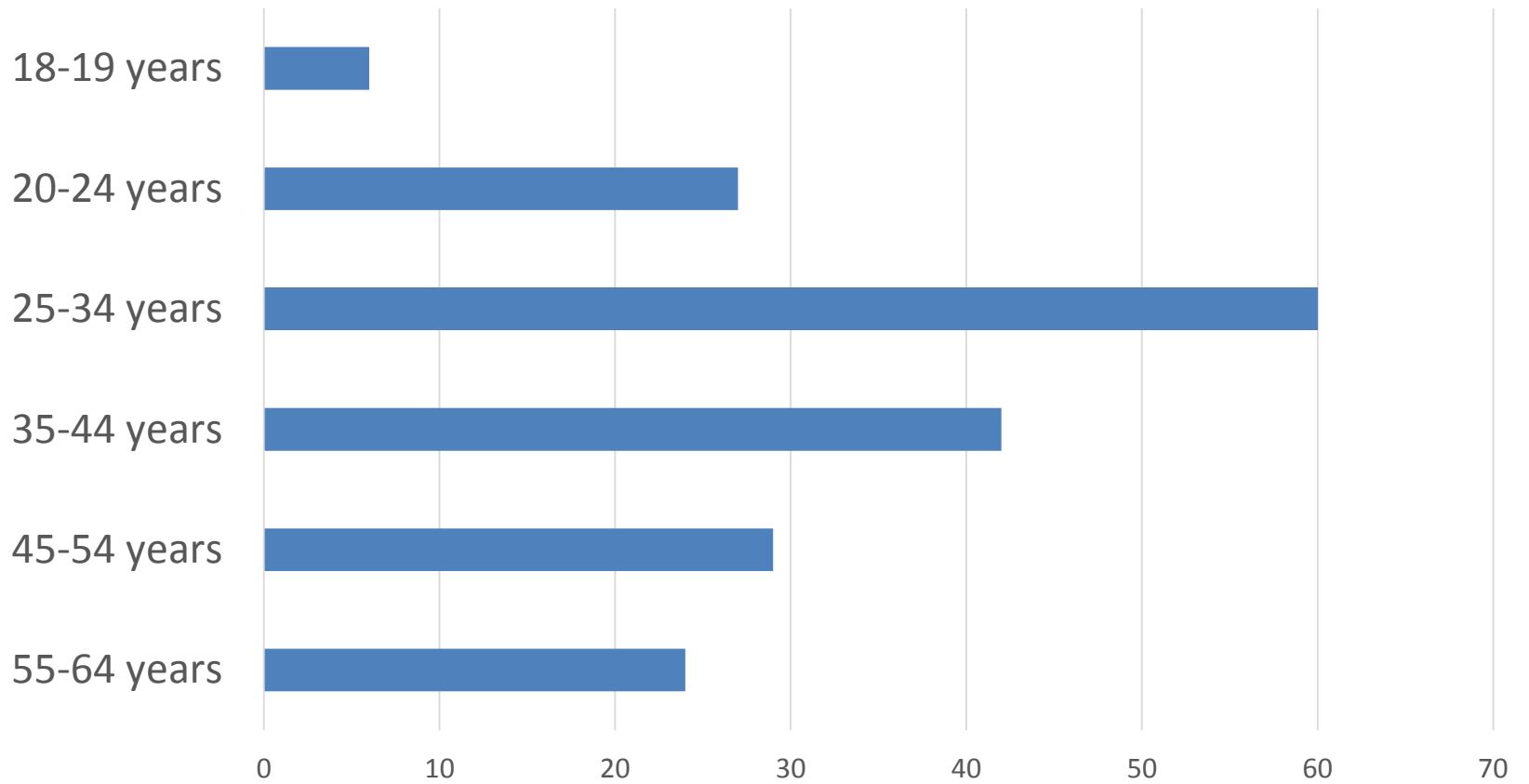
Oil and Gas sector fatalities: All incidents versus roadway crashes, 2011-2014

Chart Title





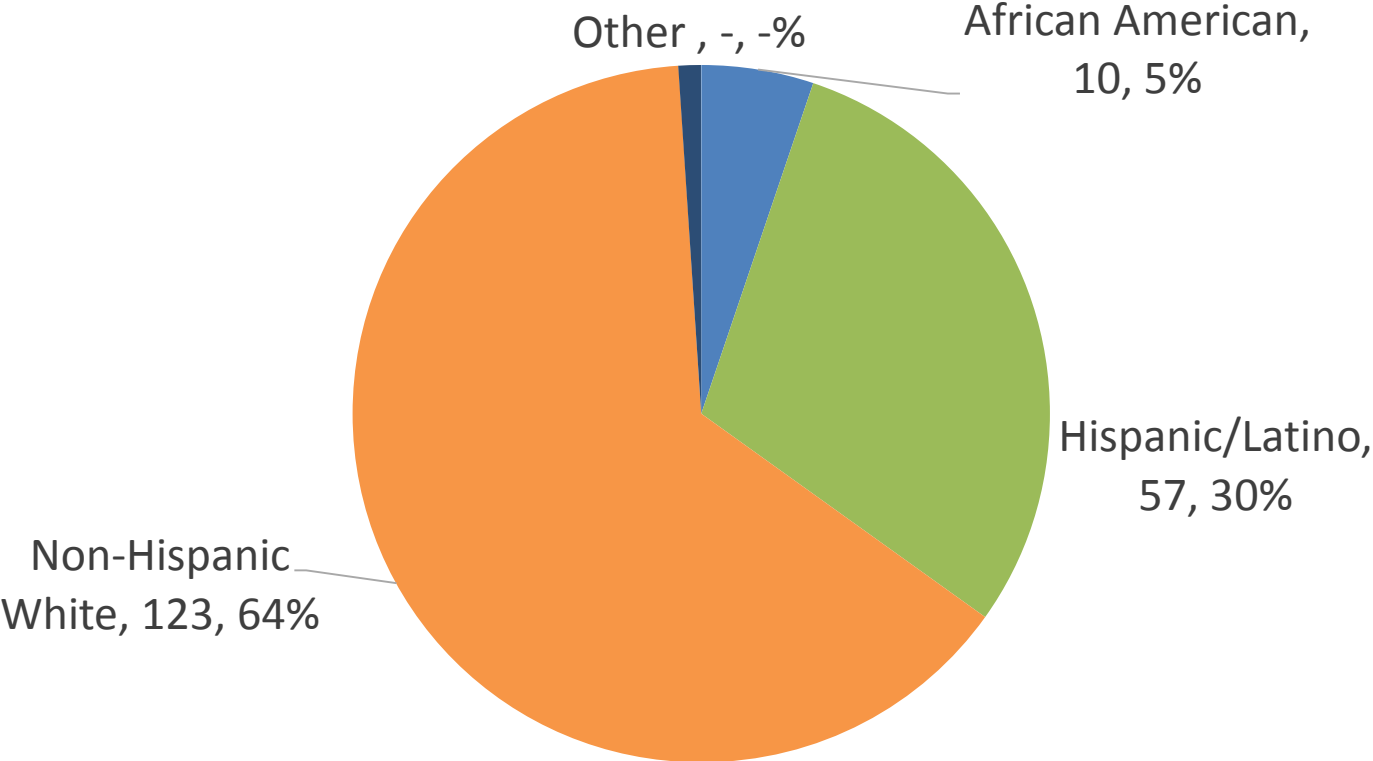
Number of fatalities by age group, 2011-2014



*Data were generated with restricted access to the CFI Research file.



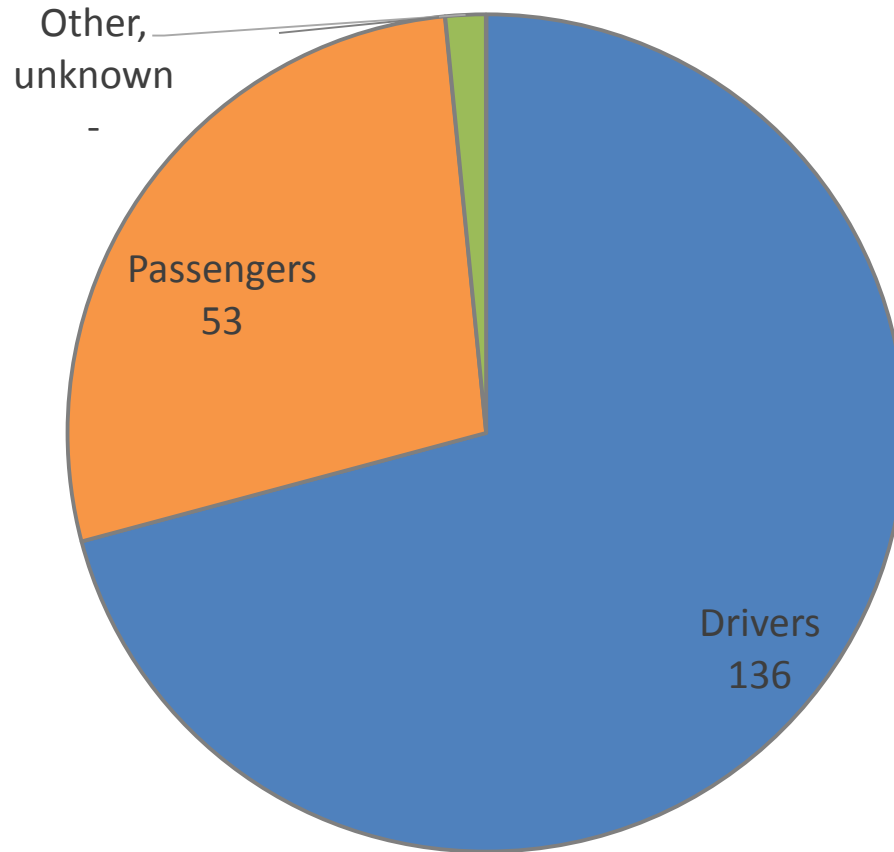
Number of fatalities by selected race and Hispanic ethnicity (N=192)



*Data were generated with restricted access to the CFI Research file.



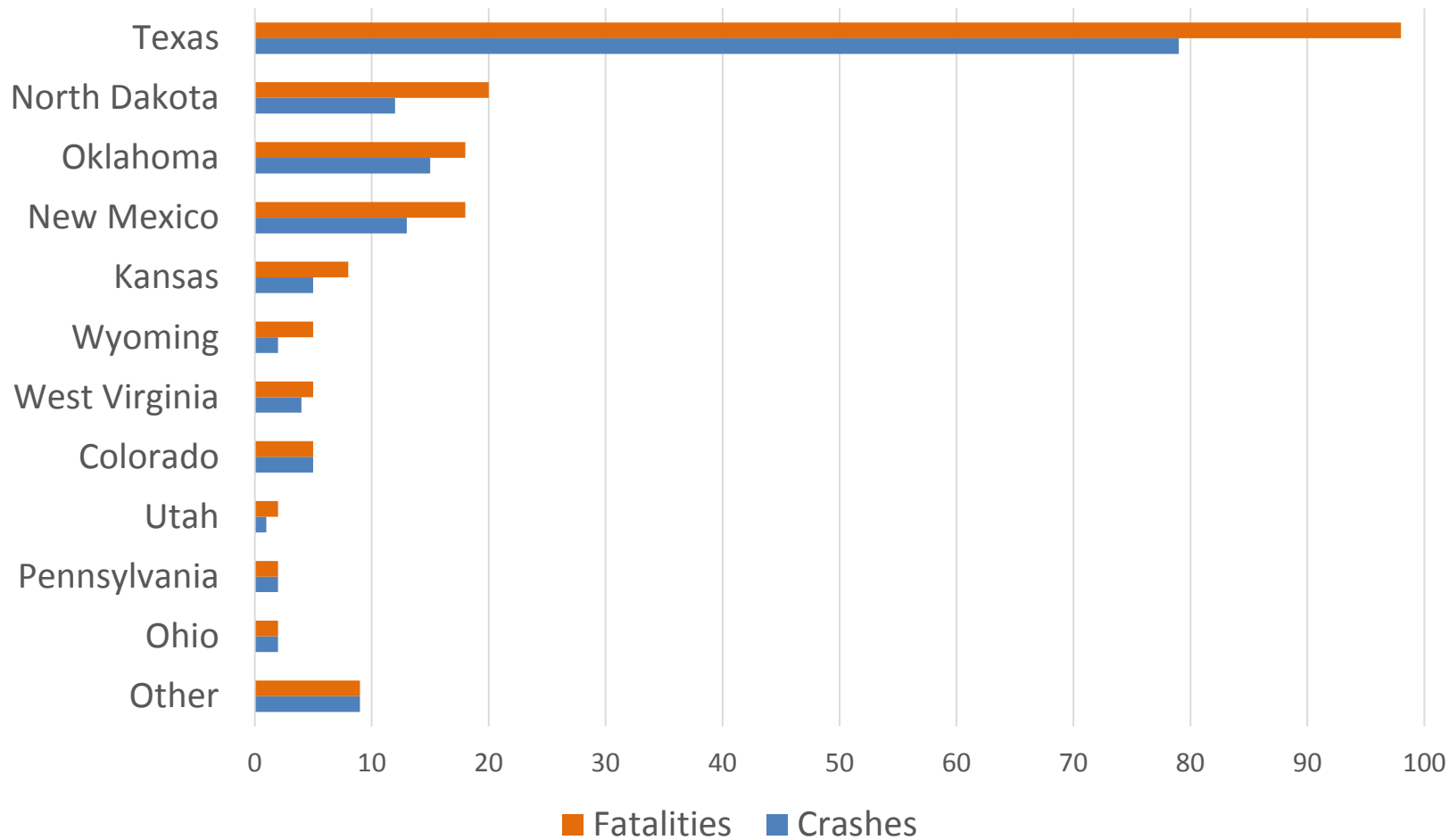
Position of fatally injured vehicle occupants (N=192)



*Data were generated with restricted access to the CFI Research file.



Fatal crashes in the Oil and Gas sectors by state, 2011-2014



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Results: Vehicle Information



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Body type of vehicles with a fatally injured occupant(s), 2011-2014

Passenger cars	5
Light trucks and vans--Utility vehicles	4
Light trucks and vans--Vans	5
Light trucks and vans--Pickup trucks	65
Light trucks and vans--Other light trucks	-
Large trucks -- Medium trucks	19
Flatbed	6
Other	6
Large trucks -- Large trucks	53
Enclosed Box	4
Cargo Tank	32
Flatbed	7
Grain/ Chips/Gravel	-
No Cargo Body Type	4
Farm/Construction equipment	3
Unknown	-
Total	156

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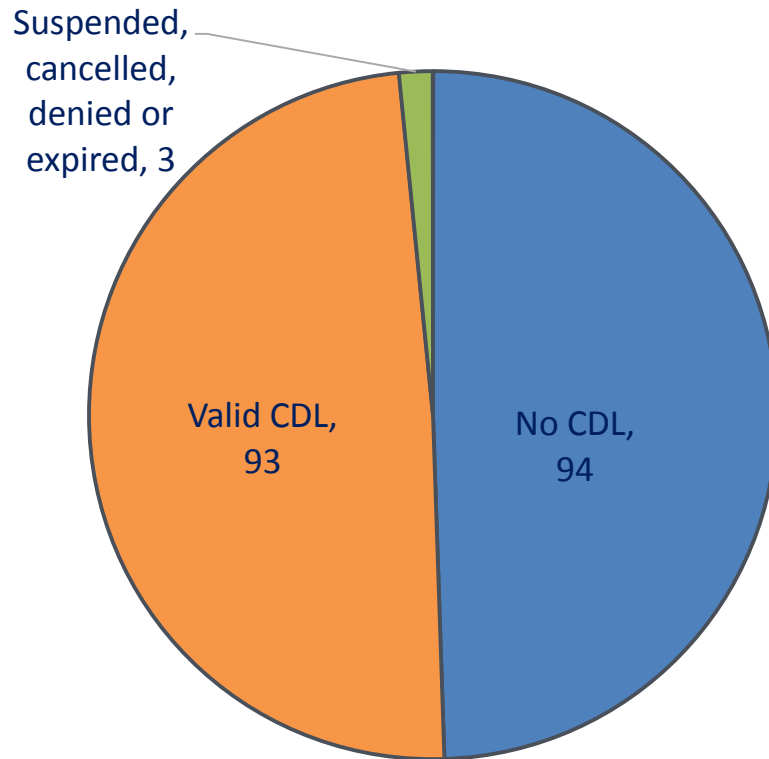


Results: Driver information



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Driver CDL Status



Around half of all drivers of vehicles in which a fatal injury occurred had a valid CDL.

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Previous violations of drivers of vehicles with fatally injured occupant(s), 2011-2014

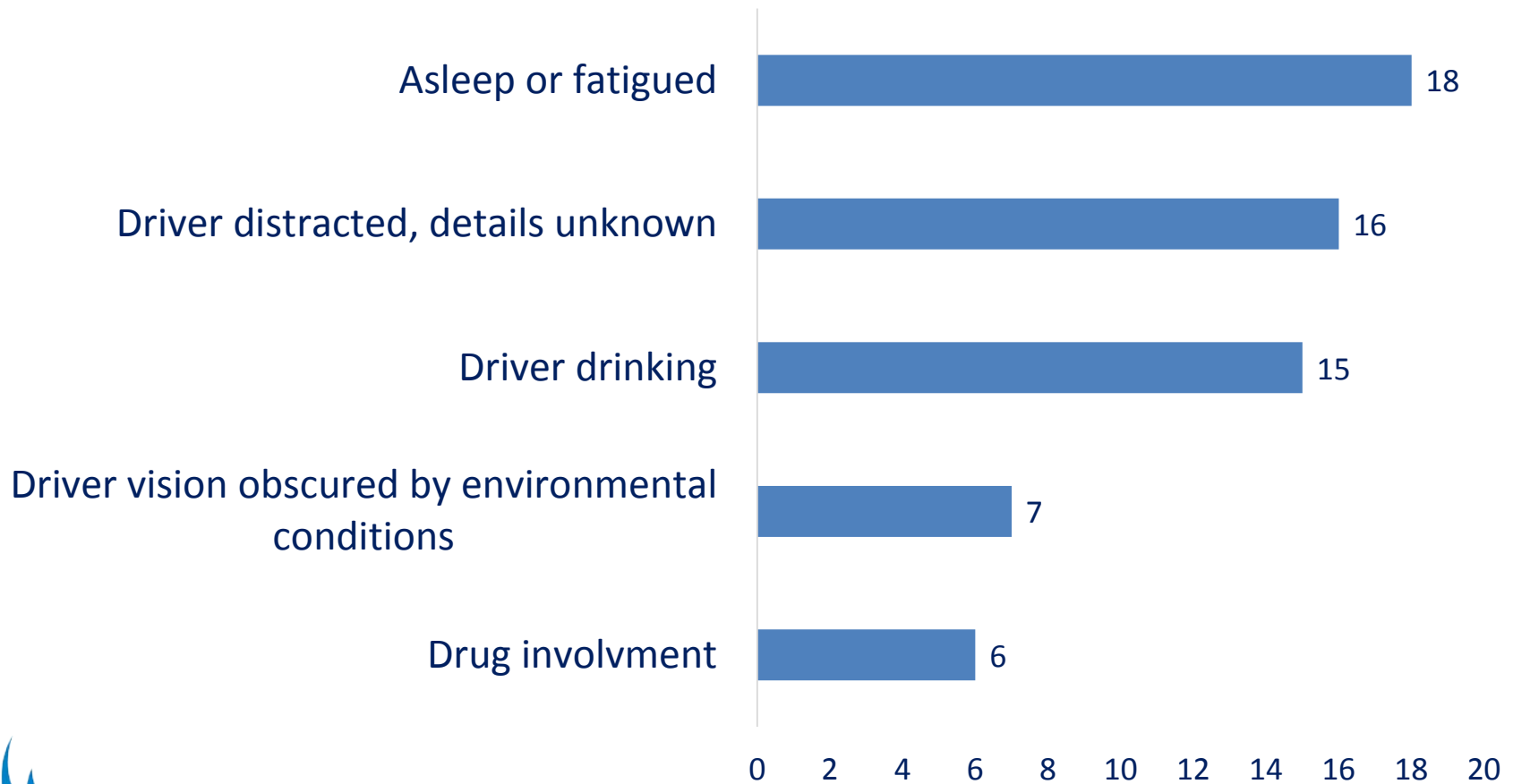
Violation Type	No Violation	One Violation	More than one Violation
Previous Recorded Crashes	153	15	-
Previous Recorded Suspensions and Revocations	158	9	21
Previous DWI Convictions	185	-	-
Previous Speeding Convictions	131	35	22
Previous Other Harmful MV Convictions	156	18	14

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Condition or impairment of drivers of vehicles with fatally injured occupant(s), 2011-2014



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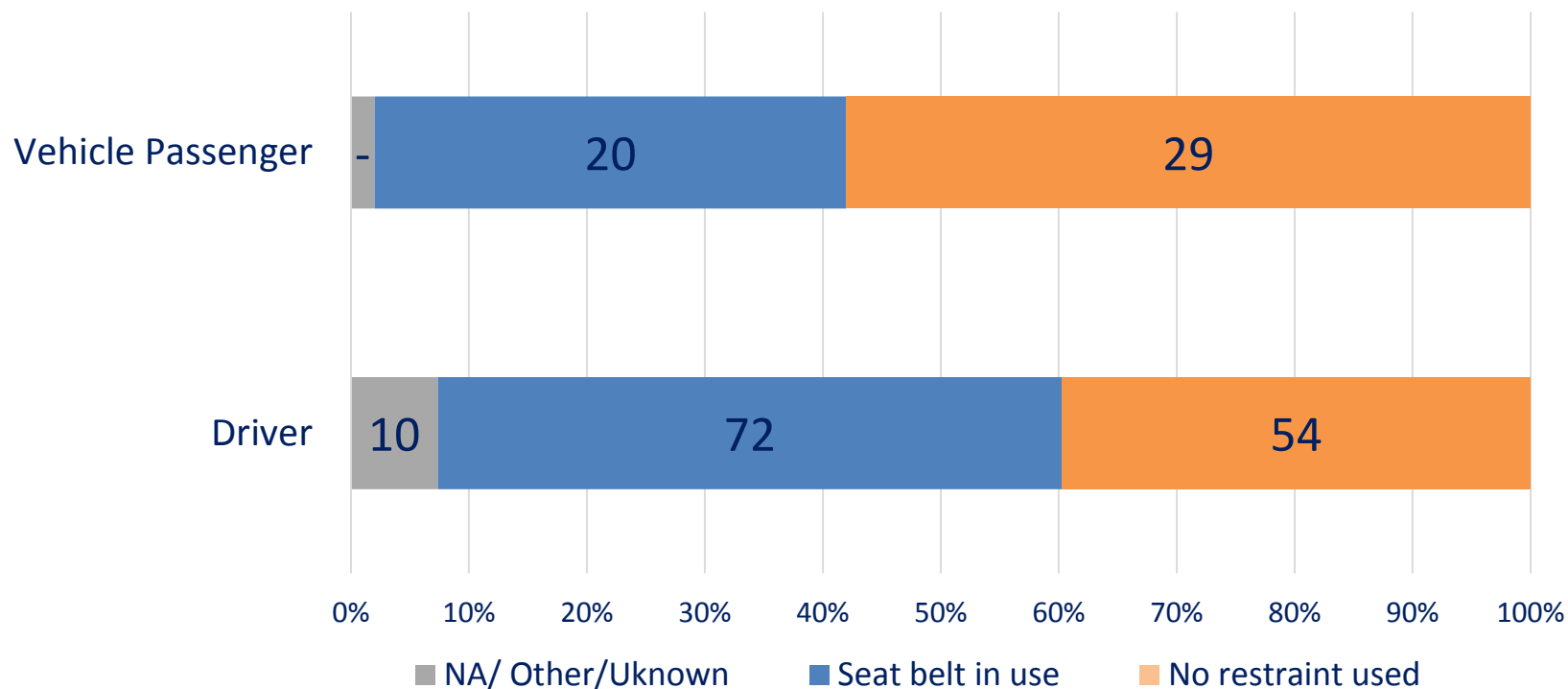


Results: Seatbelt Status



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Seating position and restraint use of fatally injured vehicle occupants, 2011-2014

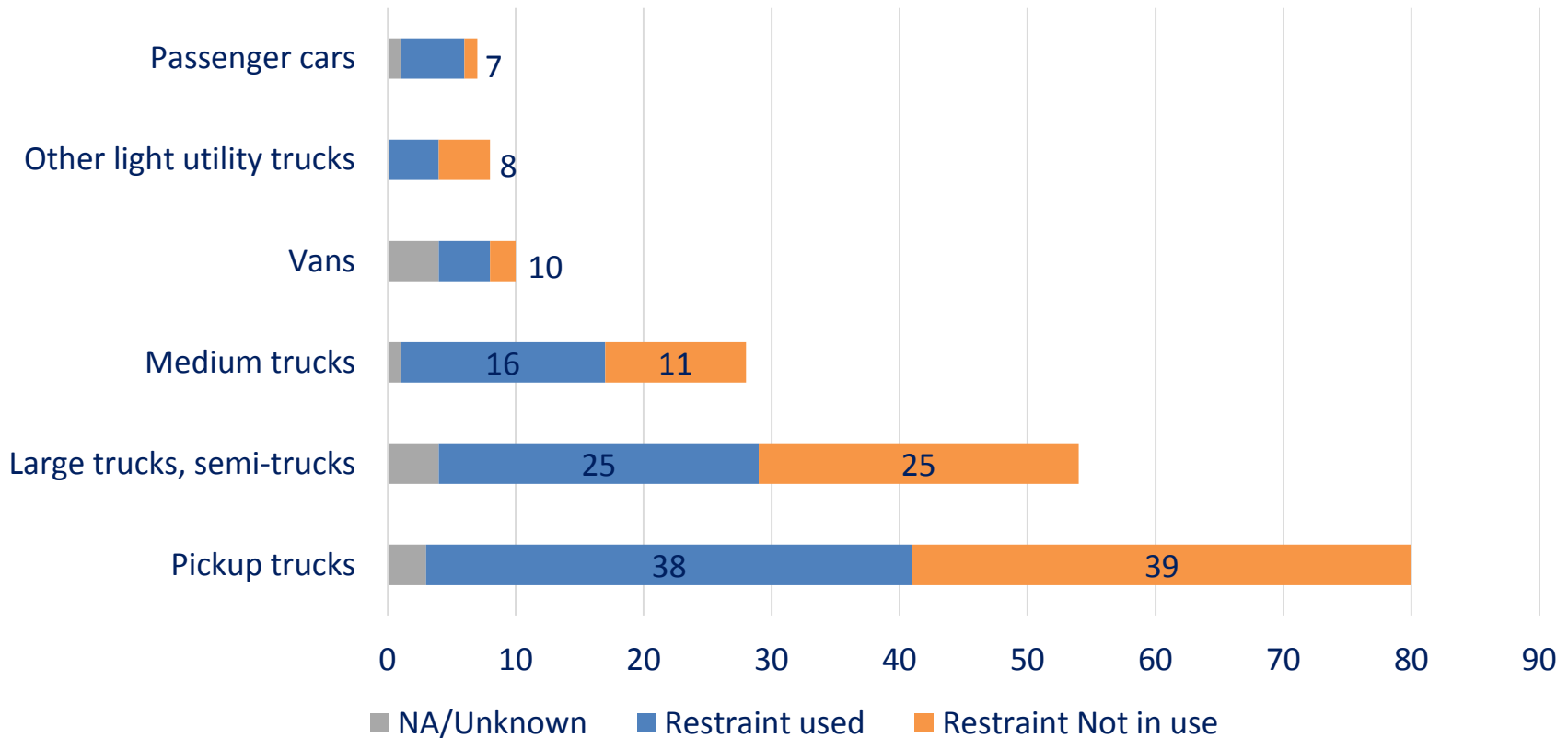


*Data were generated with restricted access to the CFI Research file.
"Other/Unknown" vehicle occupant position category not shown here.

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Restraint use by vehicle type in vehicles with fatally injured occupant(s), 2011-2014



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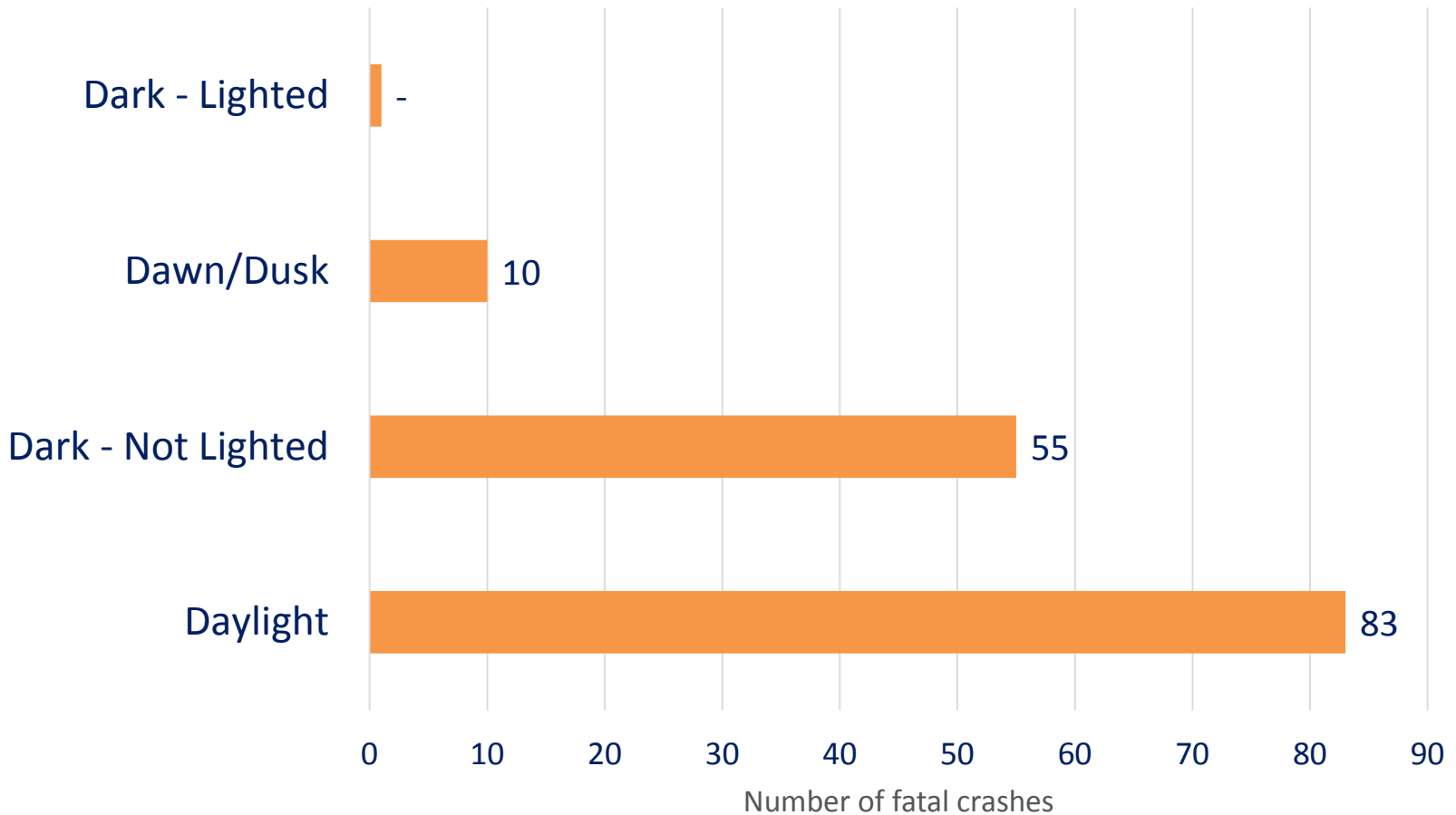


Results: Environmental and Road Conditions



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Light conditions of fatal crash, 2011-2014

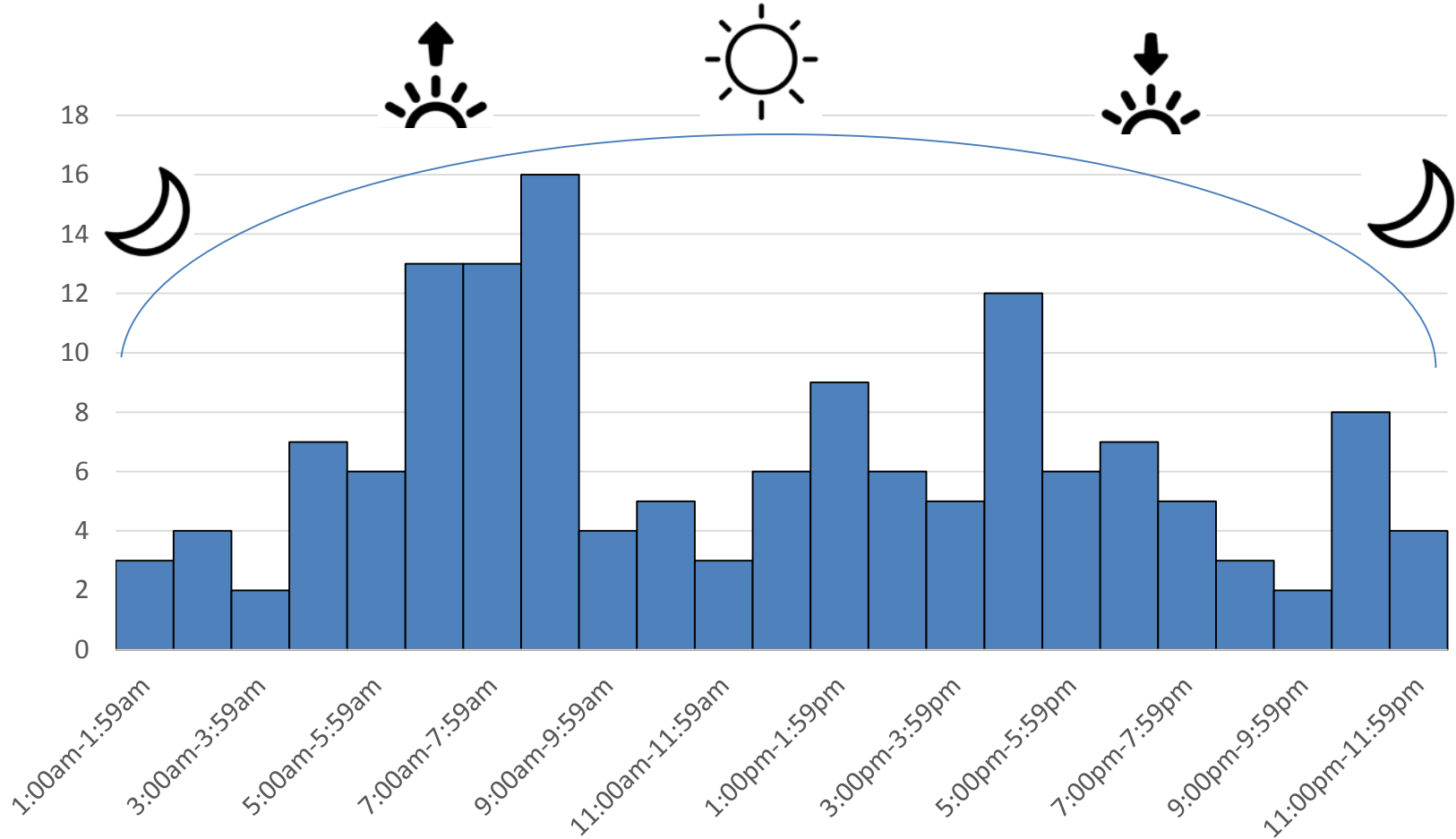


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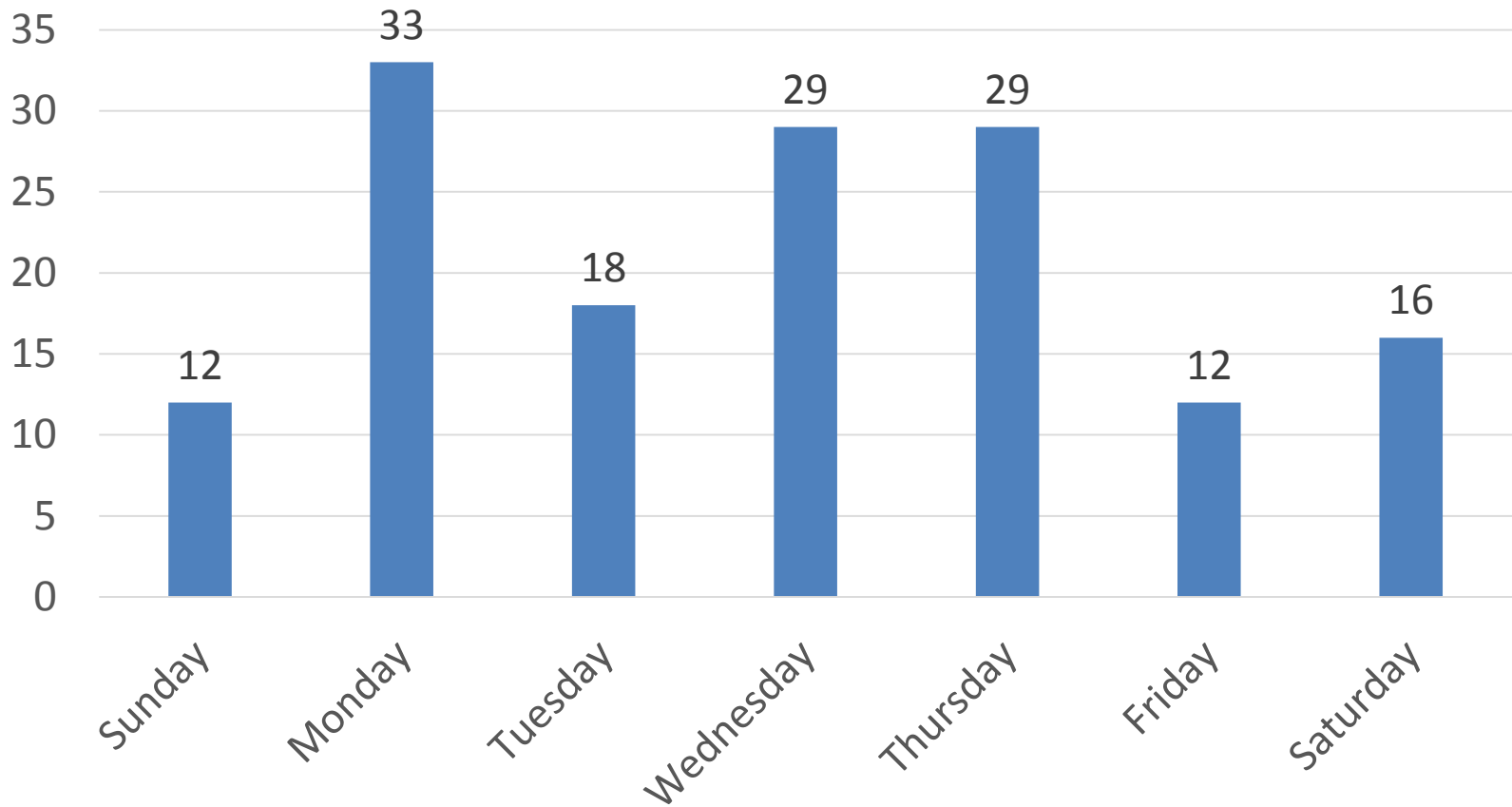
Fatal crash frequency by time of day, 2011-2014



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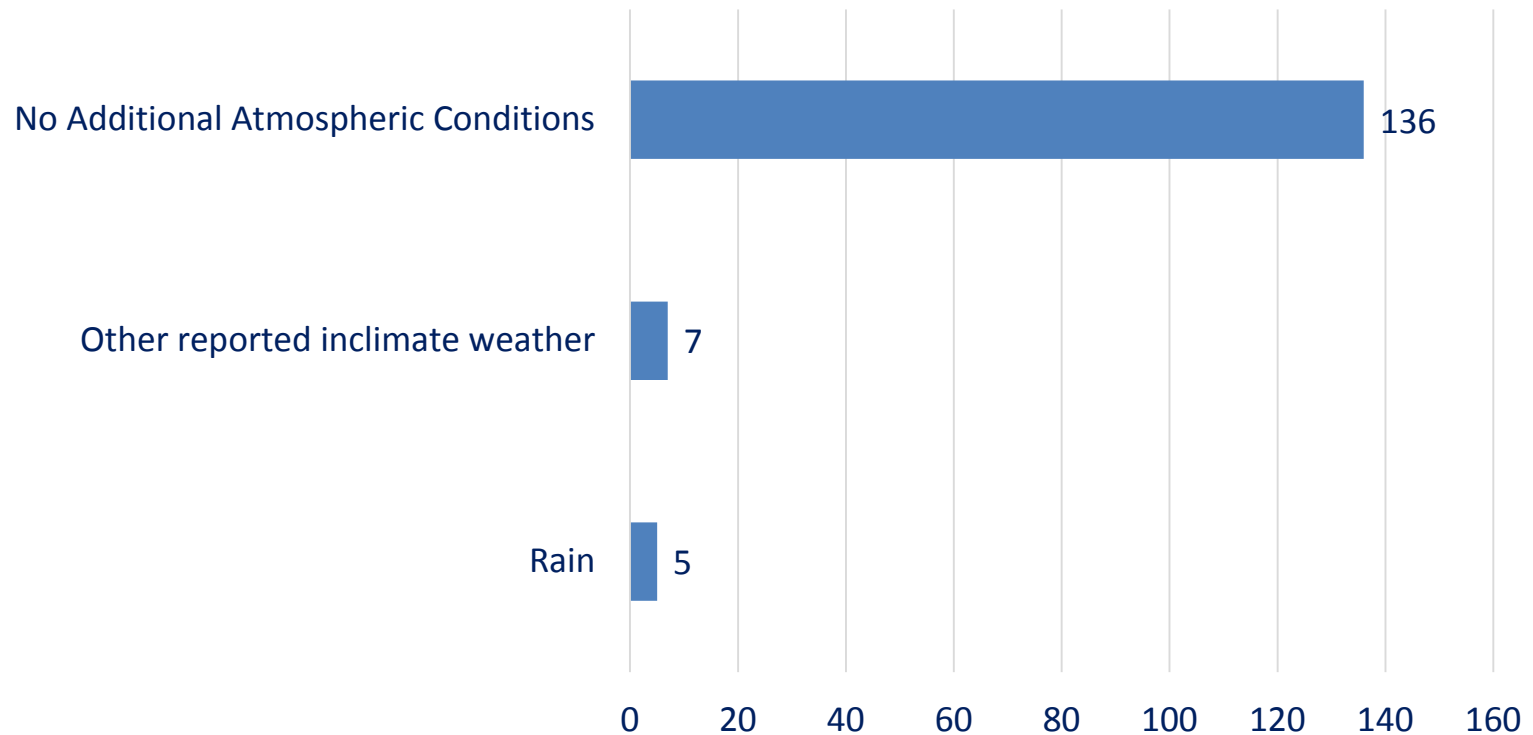
Fatal crashes by day of the week, 2011-2014



*Data were generated with restricted access to the CFI Research file.



Weather conditions of fatal crash



*Data were generated with restricted access to the CFI Research file.



Route type and rural/urban designation of location of fatal roadway crashes, 2011-2014

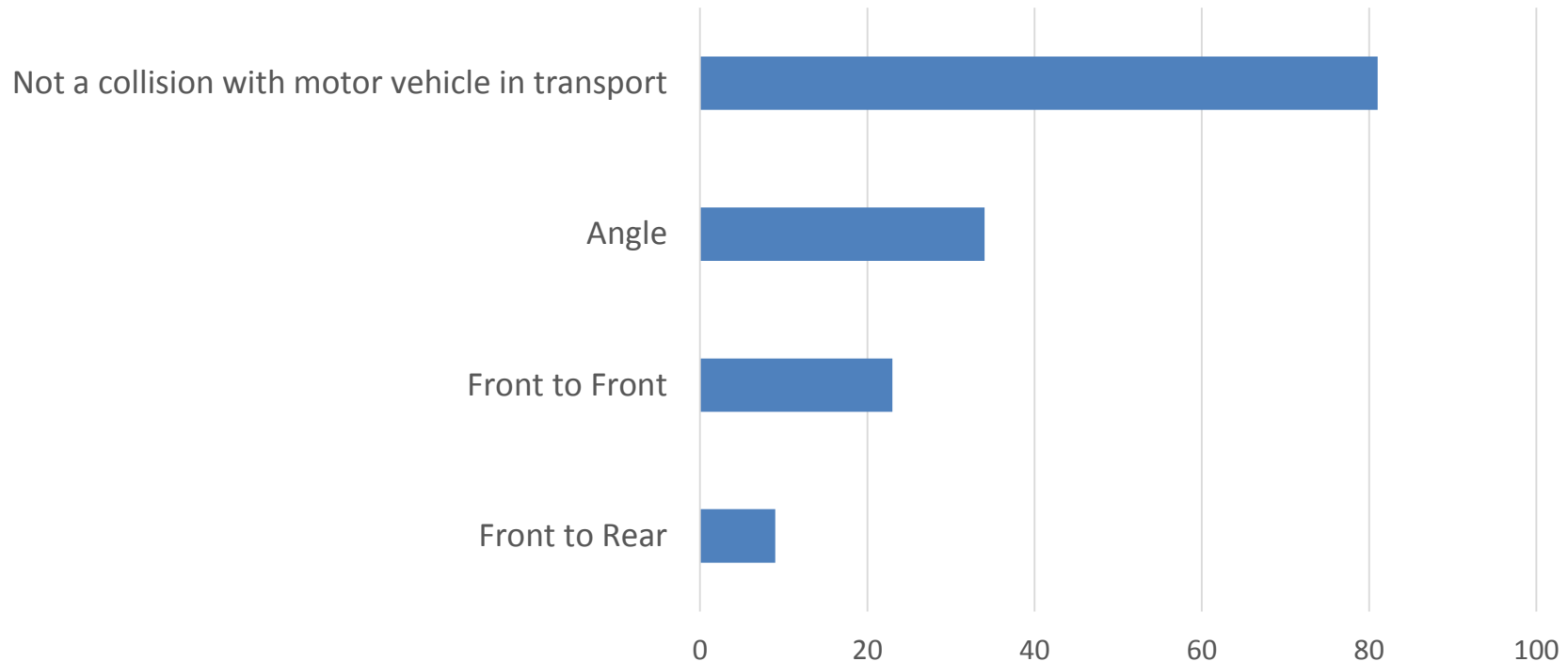
Route type	Rural	Urban	Total
Interstate	9	5	14
U.S. Highway	31	-	33
State Highway	52	-	53
County Road	13	-	13
Local Street	5	-	7
Other/ Unknown	24	5	29
Total	134	15	149

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Manner of collision in fatal crashes in the Oil and Gas sector, 2011-2014



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Relation to the road of fatal roadway crashes in the oil and gas sectors, 2011-2014

Relation to the Road	Number of fatal crashes
On Roadway	75
On Roadside/ shoulder	59
Outside Trafficway	6
On Median	6
Separator	-

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Limitations

- Definitional differences in CFOI and FARS make complete matches impossible
 - 10% of CFOI cases were not matched
- If it is not in CFOI, we cannot find it in FARS
 - CFOI excludes normal commutes
 - We lose some Oil and Gas contractors due to the way that contractors are defined in the CFOI program



Driver Record Checks Essential

- For both CDL and non-CDL are important: 30 drivers (out of 158) involved drivers with more than one suspension/revocation





We still need to talk about Seatbelts!

- A more complete picture finds:
- High **passenger** proportion of non-seatbelt use
- Half of even **large truck** occupants were not wearing seatbelt
- More intervention is needed (i.e. observations, IVMS)



Journey Management Essential

- Crash time:
 - morning is greatest (6-9am); the most common time for drowsy-related fatal crashes.
 - 55 fatal crashes occurred on dark unlit roads
- Evaluate operations to limit night driving
- Conduct Road Hazard Assessments
- Refer to IOGP Land Transport Recommended Practice: RP 365





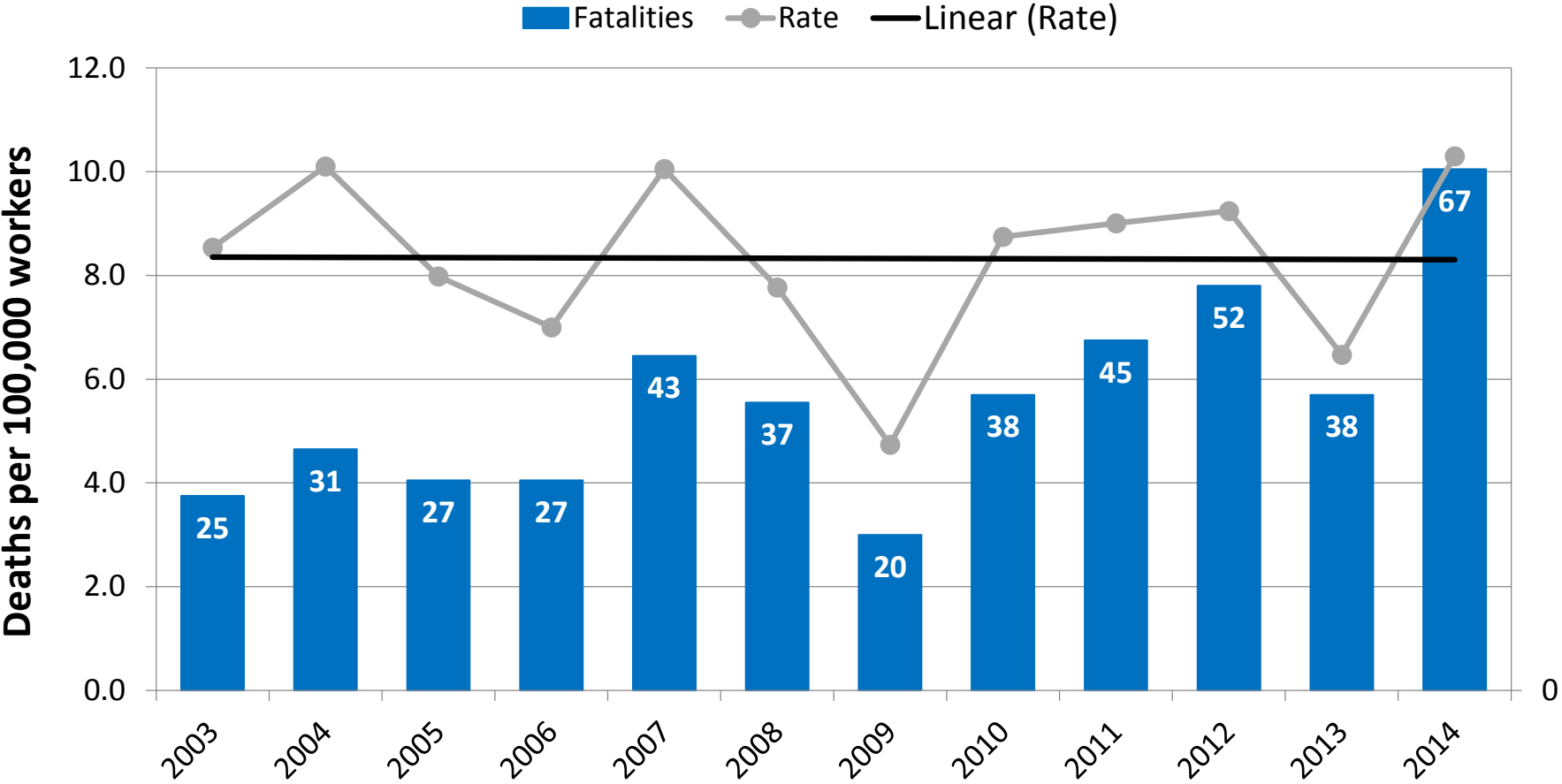
Addressing Fatigue and Distraction

- Factor in **at least** 1 out of 5 crashes
- Large proportion of crashes were non-collision incidents (MAY be related)
- Large number on roadside/shoulder
- Educate about importance of sleep
- Arrange for safe drivers after long shifts
- Implement no-mobile device policies



MV fatality rate is flatlined!

We need to act



Data Source: NIOSH Oil and Gas Program

Note: Fatality counts from BLS Census of Fatal Occupational Injuries. Worker Estimates from BLS Quarterly Census of Employment and Wages. Rate per 100,000 workers per year. Includes NAICS 211, 213111, 213112..

Questions?

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