



AESC

Industry Safety Stats

AESC Safety Statistics
and Fatality Overview
Thru 2019

AESC SAFETY STATISTICS OVERVIEW

FATALITY AND SEVERE INJURY DATA

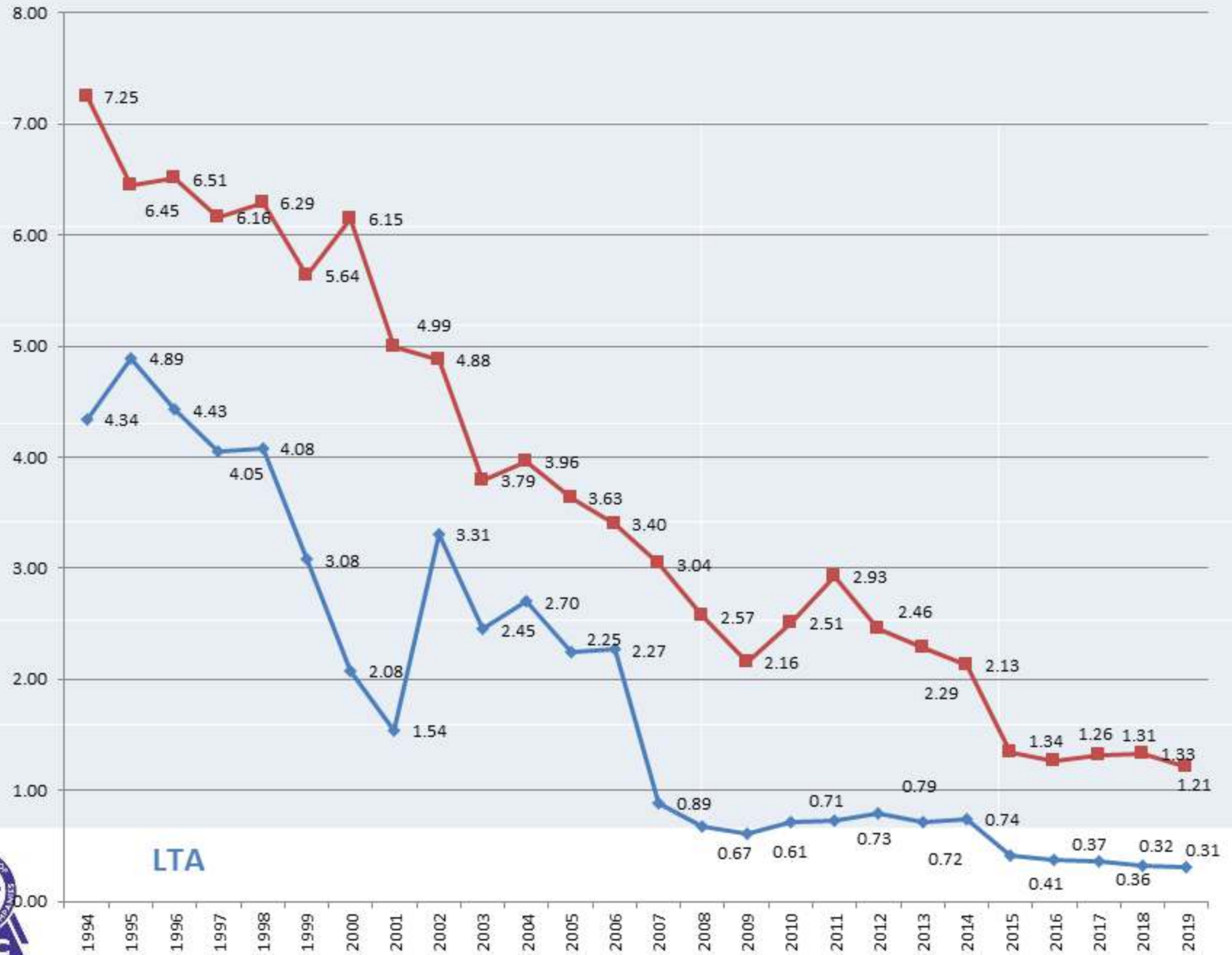


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AESC SAFETY STATISTICS – ACTUAL

SAFETY STATISTICS SUMMARY 1994 - 2019			
1994	4.34	7.25	23,953,596
1995	4.89	6.45	28,553,853
1996	4.43	6.51	24,173,988
1997	4.05	6.16	13,000,000
1998	4.08	6.29	13,705,150
1999	3.08	5.64	27,745,046
2000	2.08	6.15	32,723,256
2001	1.54	4.99	35,528,893
2002	3.31	4.88	33,393,227
2003	2.45	3.79	38,835,386
2004	2.70	3.96	43,657,236
2005	2.25	3.63	44,275,768
2006	2.27	3.40	49,553,332
2007	0.89	3.04	55,110,850
2008	0.67	2.57	61,072,089
2009	0.61	2.16	42,310,777
2010	0.71	2.51	49,353,326
2011	0.73	2.93	49,218,783
2012	0.79	2.46	55,253,194
2013	0.72	2.29	44,928,902
2014	0.74	2.13	45,272,379
2015	0.41	1.34	43,735,899
2016	0.37	1.26	35,673,108
2017	0.36	1.31	50,020,528
2018	0.32	1.33	75,264,076
2019	0.31	1.21	68,029,221

AESC SAFETY STATISTICS – ACTUAL



LTA

COMPANY SIZE BREAKDOWN ALL SERVICE COMPANIES REPORTING

ALL SERVICE COMPANY REPORTS 2019

REPORTED GROUP HOURS	LTA	TRIR
GROUP I (0-75K HRS)	0.00	0.70
GROUP II (75K - 150K HRS)	0.54	1.81
GROUP III (150K - 300K HRS)	0.22	1.17
GROUP IV (300K - 2,500K HRS)	0.35	1.14
GROUP V (>2,500K HRS)	0.27	1.24
TOTAL OTHER SERVICES	0.31	1.21



COMPANY SIZE BREAKDOWN RIG SERVICE COMPANIES REPORTING

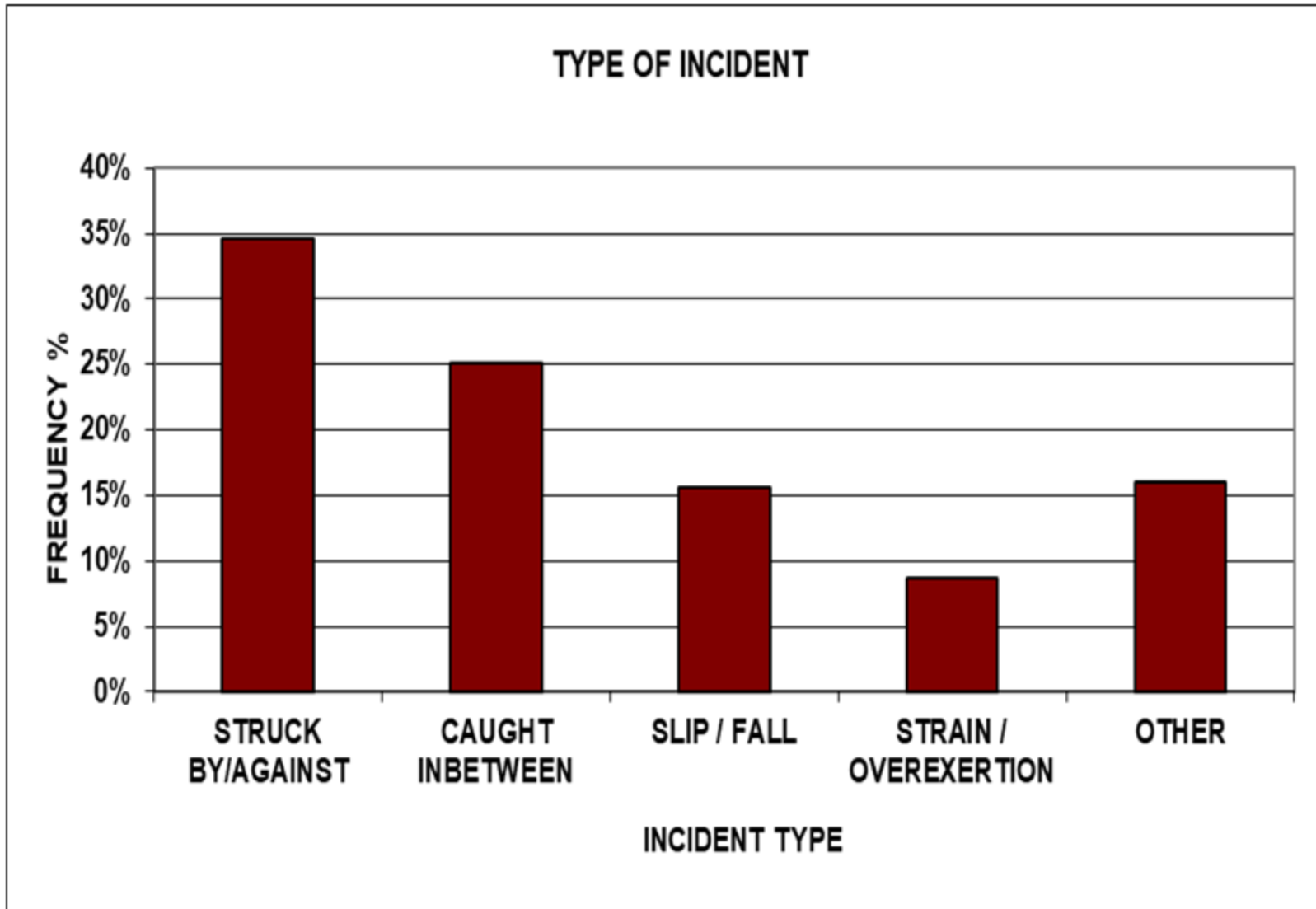
WELL SERVICING RIGS ONLY 2019

REPORTED GROUP HOURS	LTA	TRIR
GROUP I (0-75K HRS)	0.00	0.63
GROUP II (75K - 150K HRS)	0.64	2.70
GROUP III (150K - 300K HRS)	0.50	1.16
GROUP IV (300K - 2,500K HRS)	0.53	1.42
GROUP V (>2,500K HRS)	0.35	1.68
TOTAL WELL SERVICE RIGS	0.39	1.45



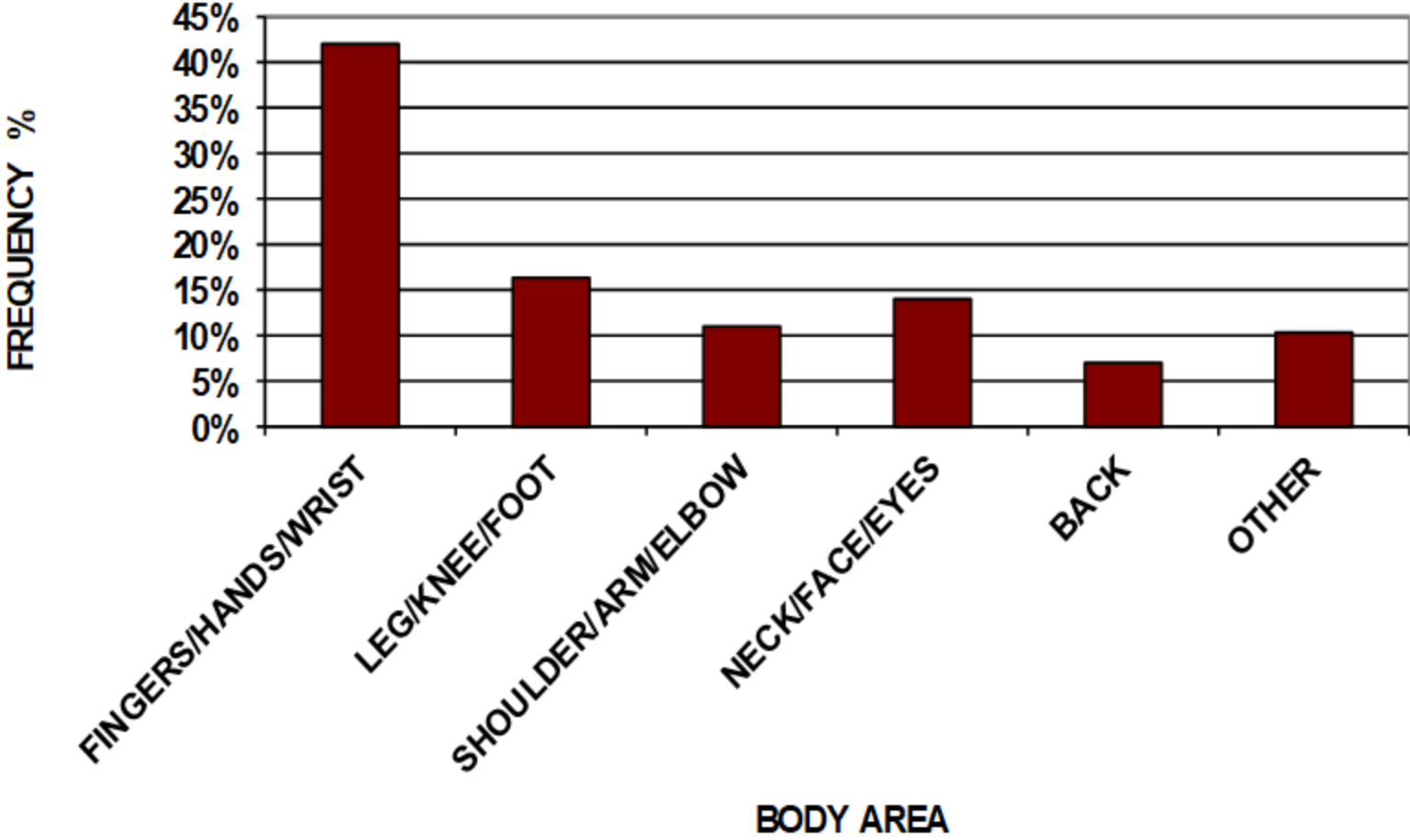
OVERVIEW (AESC COMPARISON LAST 3 YEAR)

Year	2017	2018	2019
Avg Age (yrs)	32.6	36.1	37.5
Avg Time in Field (yrs)	7.5	5	5.4
Avg Time in Position (yrs)	5.6	3.6	4
Time of year (month)	Sept	July/Aug (tied)	Oct
Time of Day (am/pm)	(50.6/49.4)	(47.2/52.8)	(47.3/52.7)
Day of the Week	Monday	Monday	Tuesday
Position	Floorhand (24.3%)	Floorhand (31.9%)	Floorhand (24.8%)
Type of Incident	Caught Between (27.5%)	Struck (35.35%)	Struck (27.3%)
Equipment Involved	Hand Tools (12.4%)	Hand Tools (13.0%)	Vehicles (10.1%)
Work Activity	Tripping Pipe (17.9%)	Tripping Pipe (16.6%)	Tripping Pipe (22.2%)
Location of Accident	Rig Floor	Rig Floor	Rig Floor
Part of the Body	Fingers/Hands/Wrist (42.2%)	Fingers/Hands/Wrist (42.1%)	Fingers/Hands/Wrist (41.9%)

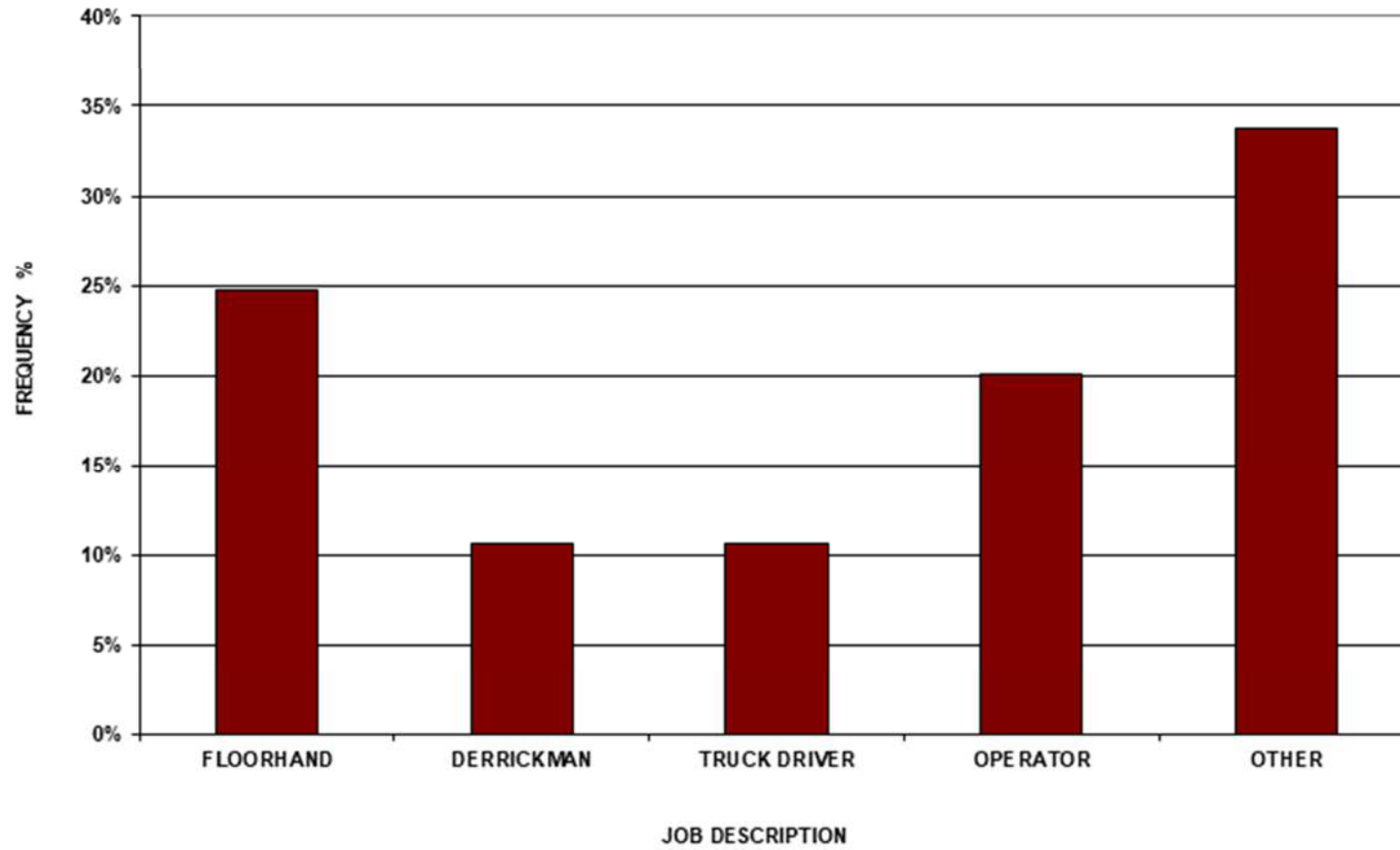


Struck By/Against and Caught Between account for almost 60% of incidents reported

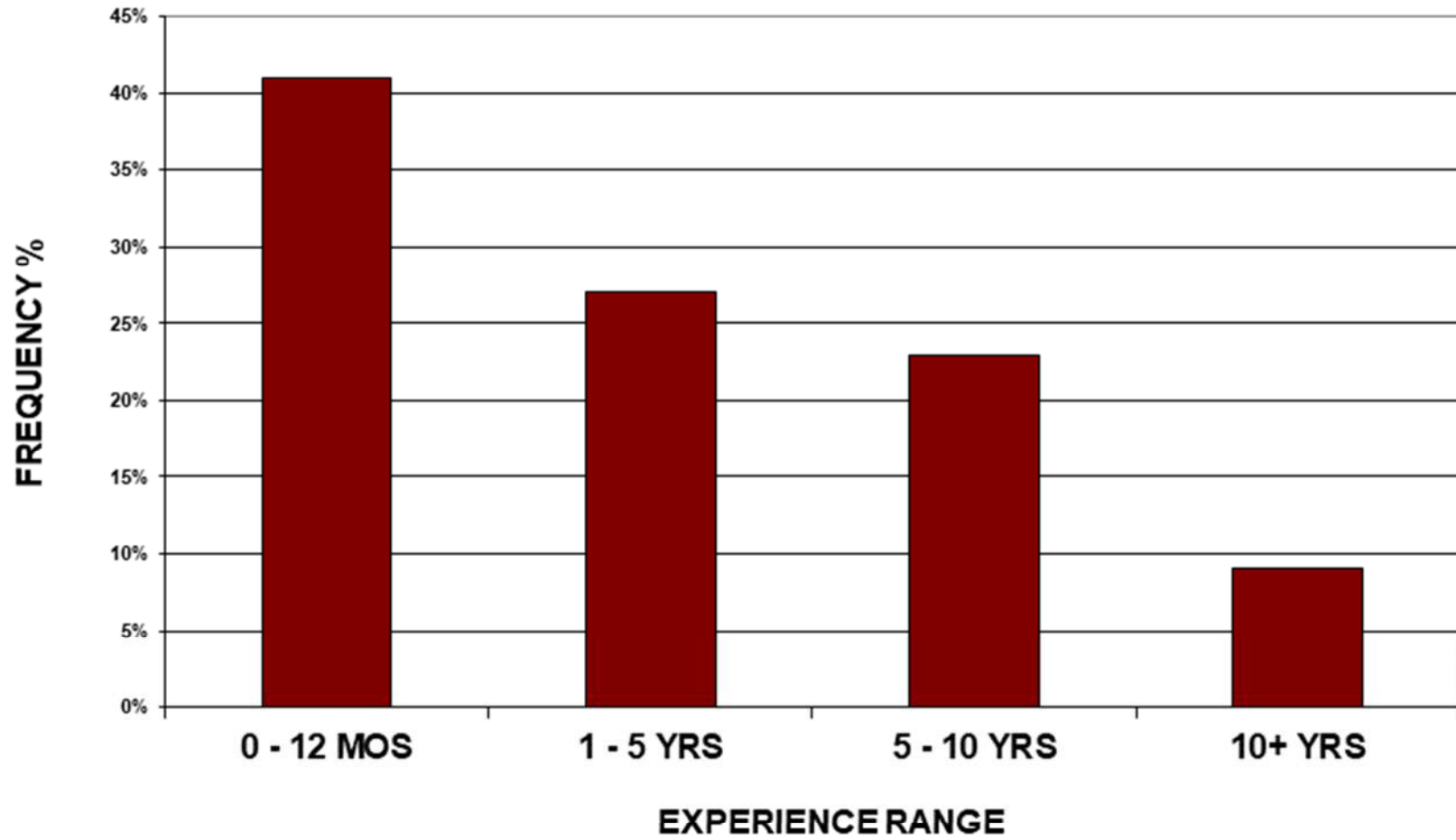
BODY PART AFFECTED



JOB TITLE



JOB EXPERIENCE



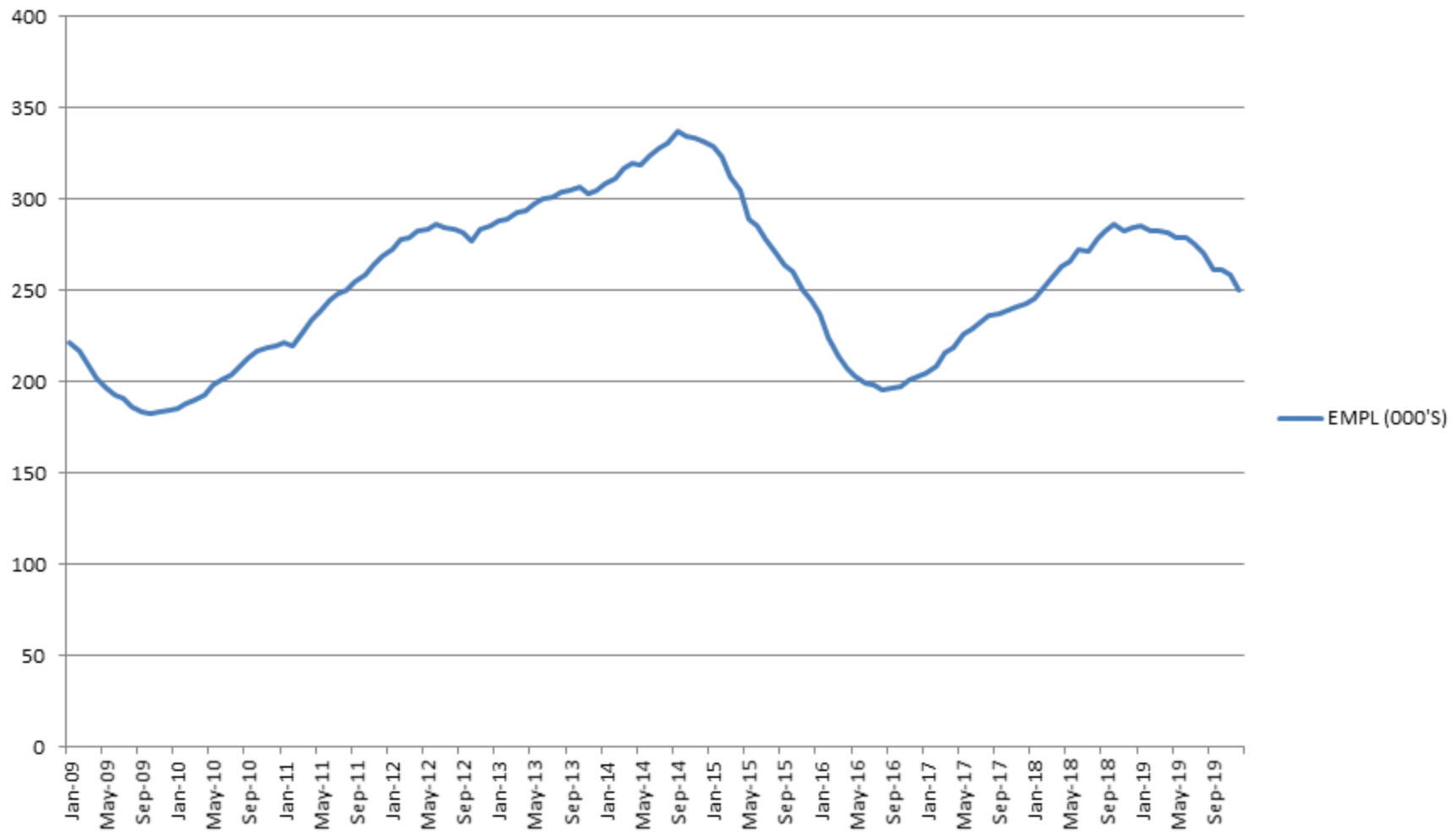
INTERESTING FACTOIDS (UPDATE)

- The Statistics over the period of 1994 to 2019 (for AESC) represent approx. 1,084B man-hours of work performed, which is equivalent to approximately 521,000 man-years of work!
 - Over that period of time, we have seen from these statistics a reduction at it's highest point on TRIR in 1994 of 7.25 to it's lowest point on TRIR in 1.21 in 2019, a reduction of 600% over a 24 year period of time!
 - But we believe we can still improve!
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LABOR COUNT FOR NAISC 213112 (SUPPORT ACTIVITIES)

NAICS CODE 213112 (WELL SERVICING)

EMPL (000'S)



Source: BLS Data

LABOR COUNT FOR NAISC 213112 (SUPPORT ACTIVITIES)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2009	221.2	216.9	209.6	201.7	196.1	192.4	190.3	186.2	183.1	182.2	183.0	184.4
2010	184.7	188.0	190.2	192.6	197.7	200.8	203.4	208.1	213.0	216.2	218.9	219.6
2011	221.6	219.7	226.9	233.1	238.2	244.7	247.9	249.9	254.3	258.6	263.8	268.7
2012	272.2	278.1	278.9	281.9	283.6	285.6	284.3	283.2	281.4	276.6	283.0	284.8
2013	287.8	288.7	292.1	293.7	297.0	299.6	301.3	303.8	304.8	306.7	303.1	305.0
2014	308.4	311.1	316.4	319.8	318.9	324.0	327.6	330.7	337.1	334.0	332.9	331.6
2015	328.6	322.9	312.4	304.2	288.5	284.8	277.8	270.6	263.5	259.8	250.0	244.3
2016	237.3	224.2	213.6	207.2	202.6	199.2	198.5	195.5	195.8	197.2	200.5	202.4
2017	204.5	208.1	216.1	218.3	225.8	228.5	232.0	236.1	237.0	238.7	241.0	242.7
2018	245.5	250.6	256.6	263.0	266.1	272.2	271.0	278.1	282.3	285.7	282.1	284.1
2019	284.7	282.6	282.4	281.1	278.6	278.3	275.2	270.6	265.1	261.4	257.8	249.6

I : Seasonally Adjusted Independently. See https://www.bls.gov/web/empstat/cestn.htm#SA_ind for details.

P : preliminary

TABLE SNR01. Highest Incidence Rates of Total Nonfatal Occupational Injury and Illness Cases, 2018

Industry ²	Incidence Rate
Nursing and residential care facilities (State government)	11.9
Pet care (except veterinary) services (Private industry)	11.4
Veterinary services (Private industry)	10.4
Steel foundries (except investment) (Private industry)	10.2
Skiing facilities (Private industry)	10
Manufactured home (mobile home) manufacturing (Private industry)	9.7
Travel trailer and camper manufacturing (Private industry)	9.3
Motor home manufacturing (Private industry)	9.2
Other animal production (Private industry)	8.9
Beef cattle ranching and farming, including feedlots (Private industry)	8.5
Aluminum foundries (except die-casting) (Private industry)	8.5
Couriers and express delivery services (Private industry)	8.2
Consumer electronics and appliances rental (Private industry)	8.2
Hospitals (State government)	8.1
All industries including state and local government ⁴	3.1

Highest Fatality Rates by Private Sector (BLS Data)

Characteristic	Fatalities	Total hours worked ² (millions)	Fatal injury rate ³
Logging workers	56	97.6	97.6
Fishers and related fishing workers	30	77.4	77.4
Aircraft pilots and flight engineers	70	58.9	58.9
Roofers	96	51.5	51.5
Refuse and recyclable material collectors	37	44.3	44.3
Driver/sales workers and truck drivers	966	26.0	26.0
Farmers, ranchers, and other agricultural managers	257	24.7	24.7
Structural iron and steel workers	15	23.6	23.6
Waste management and remediation services	89	21.3	21.3
First-line supervisors of construction trades and extraction workers	144	21.0	21.0
First-line supervisors of landscaping, lawn service, and groundskeeping workers	48	20.2	20.2
Electrical power-line installers and repairers	29	19.3	19.3
Landscaping services	241	18.8	18.8
Grounds maintenance workers	225	18.6	18.6
Miscellaneous agricultural workers	157	18.0	18.0
Helpers, construction trades	11	15.8	15.8

Highest Fatality Rates by Private Sector (BLS Data)

Characteristic	Total fatal injuries ¹	Total hours worked ² (millions)	Fatal injury rate ³
Logging workers	56	115	97.6
Fishers and related fishing workers	30	78	77.4
Aircraft pilots and flight engineers	70	221	58.9
Roofers	96	369	51.5
Refuse and recyclable material collectors	37	167	44.3
Driver/sales workers and truck drivers	966	7,404	26.0
Structural iron and steel workers	15	127	23.6
First-line supervisors of landscaping, lawn service, and groundskeeping workers	48	475	20.2
Electrical power-line installers and repairers	29	301	19.3
Landscaping services	241	2,519	18.8
Grounds maintenance workers	225	2,333	18.6
Support activities for mining			13.7

2012-2017 OSHA Data

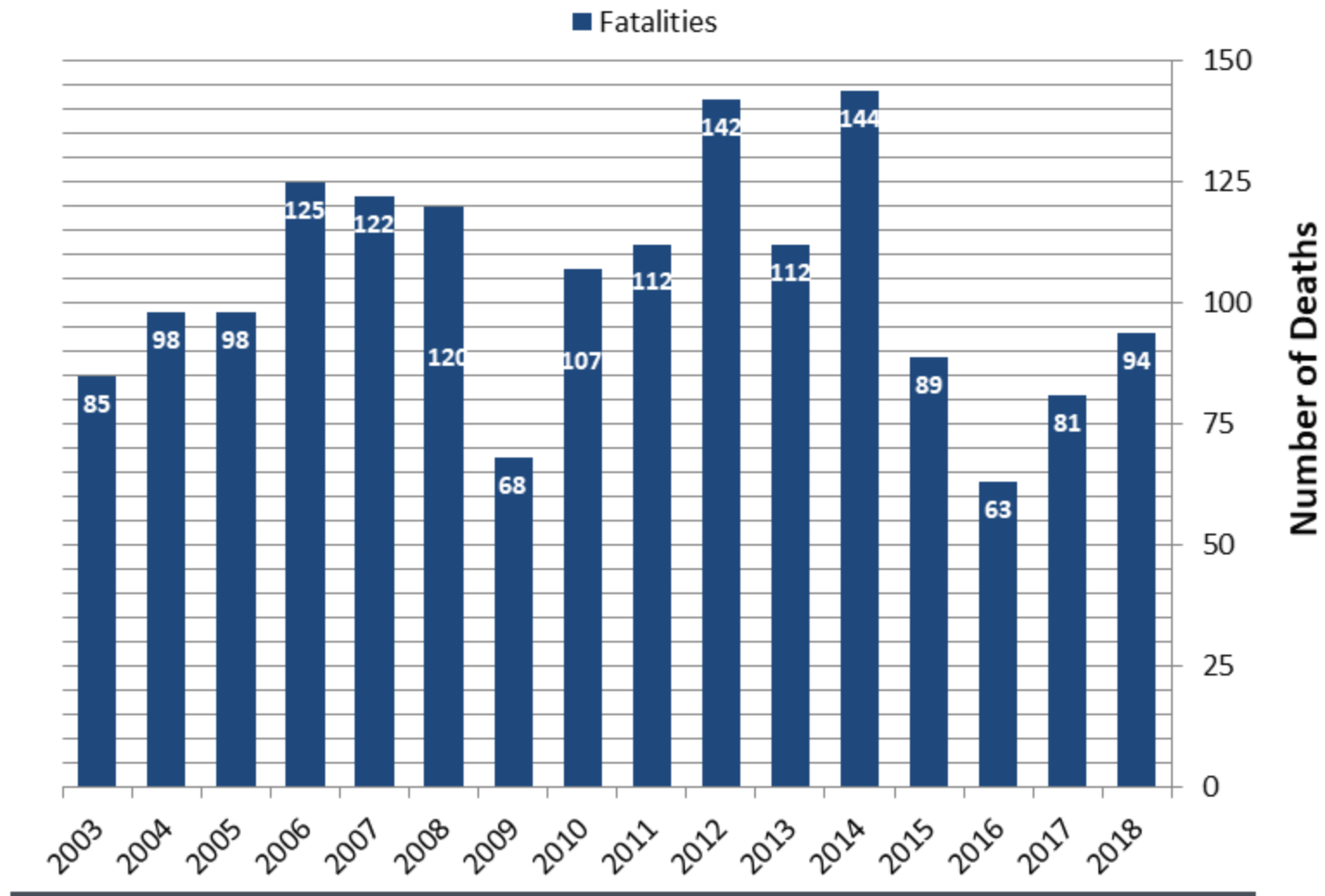
Leading Causes of Fatal Accidents **update**

- Transportation (49.4%)
 - Contact (19.8 %)
 - Fire and Explosion (12.5%)
 - Falls (8.2%)
 - Exposure (8.0%)
 - Others (2.1%)
-

Fatality Data 2013-2018



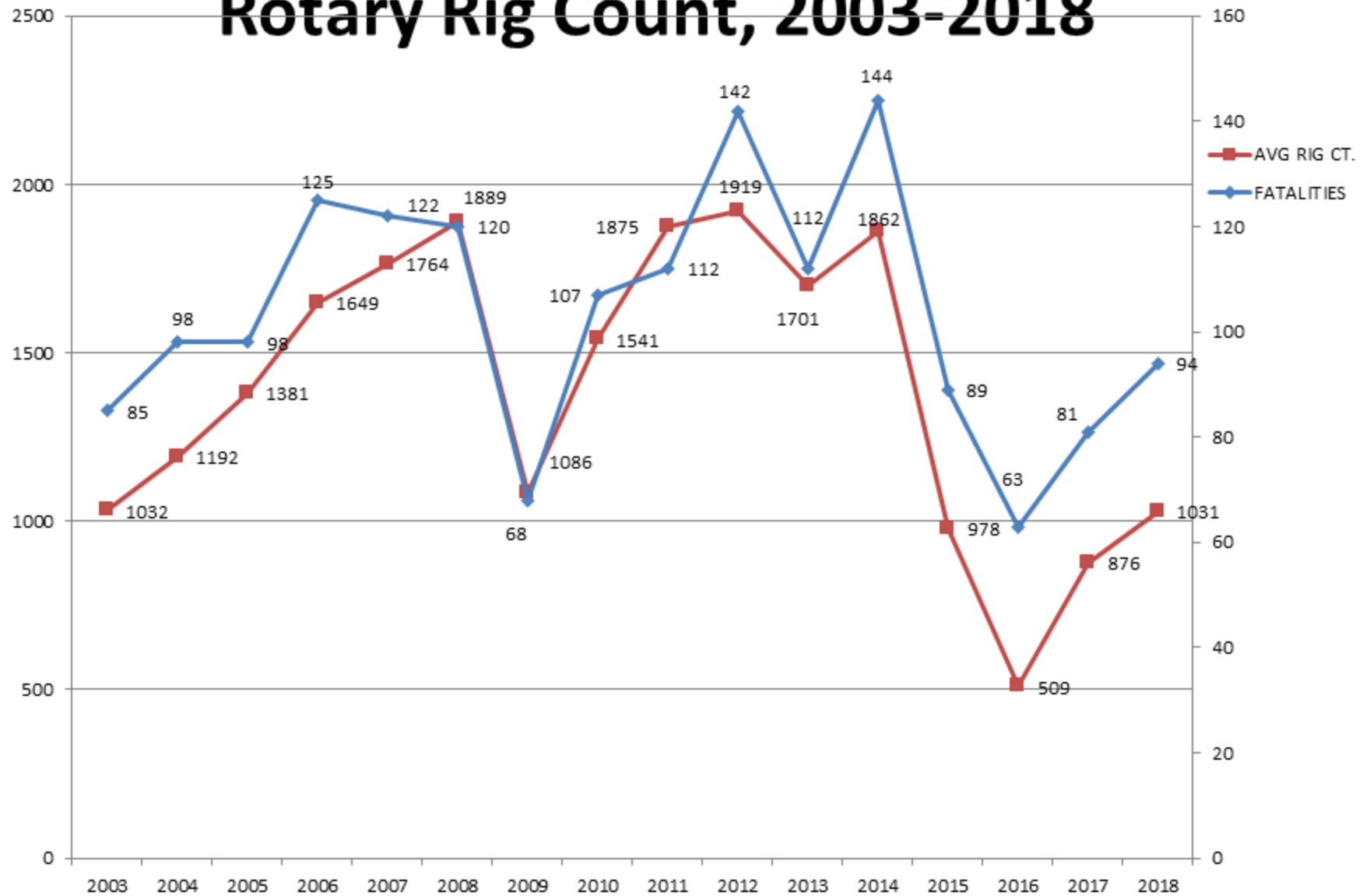
Number of Fatal Work Injuries U.S. Oil & Gas Extraction Industry, 2003–2018



Note: Fatality counts from BLS Census of Fatal Occupational Injuries. Includes NAICS 211, 213111, 213112..

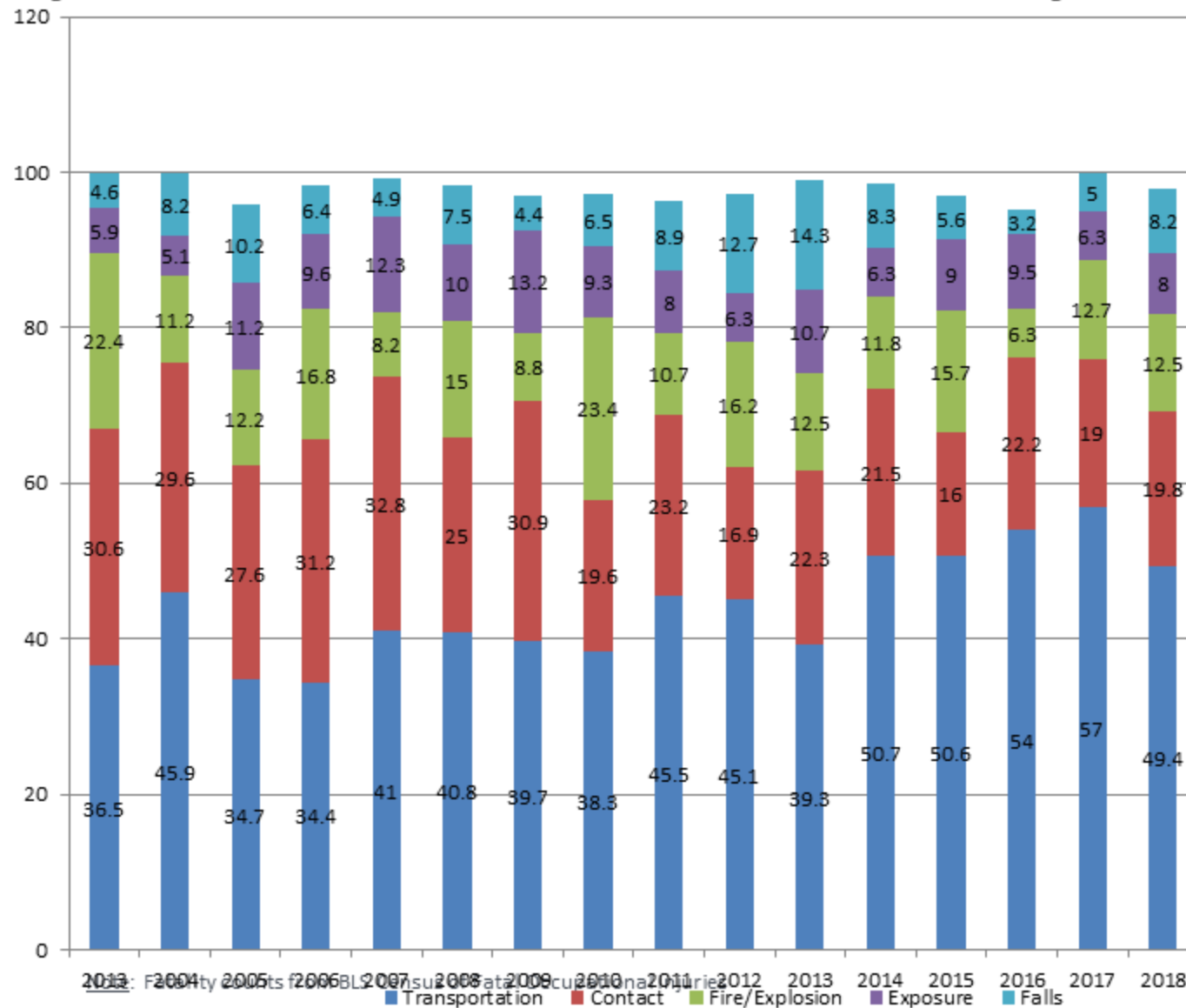


Rate of Fatal Work Injuries and U.S. Rotary Rig Count, 2003-2018



Note: Fatality counts from BLS Census of Fatal Occupational Injuries. Worker Estimates, Includes NAICS 211, 213111, 213112. Rotary Rig Count from Baker Hughes Rig Count.

Leading Causes of Occupational Fatalities (%) by Year, Oil and Extraction Industry, 2003-2018



N=1,485

Fatalities: 2018

Data Source: BLS Census of Fatal
Occupational Injuries

Fatality Rates per 100,000 workers by Company Type U.S. Oil & Gas Extraction Industry, 2018

Company type (NAICS code)	Number	%
Operators (211)	13	13.8%
Drilling Contractors (213111)	14	14.9%
Well-servicing companies (213112)	67	71.3%
TOTAL	94	

Leading Causes of Death by Company Type

Oil and Gas Extraction Industry, 2018

Drilling Operations NAICS 213111

Event Type	No.	%
Transportation	4	28.6%
Fire and Explosion	5	35.7%
Contact w/ Objects	3	21.4%
Other	2	14.3%
TOTAL	14	

Support Activities NAICS 213112

Event Type	No.	%
Transportation	34	50.7%
Contact w/ Objects	14	20.9%
Fires and Explosions	7	14.4%
Falls, Slips, Trips	6	9.0%
Exposure to Harmful Substance	5	7.4%
Other	1	1.5%
TOTAL	67	

Note: Fatality counts from BLS Census of Fatal Occupational Injuries

Leading Causes of Death by Company Type

Oil and Gas Extraction Industry, 2018

Oil and Gas Operators NAICS 211

Event Type	No.	%
Transportation	10	76.9%
Other (non-reportable)	3	23.1%
TOTAL	13	

Note: Fatality counts from BLS Census of Fatal Occupational Injuries

SEVERE INJURIES

Severe Injuries in Upstream Oil & Gas : Data Gaps and Limitations

- State-run OSHA programs not included (i.e. Alaska, California, etc.)
- Under-reporting and reporting errors
 - Estimated to be underreported based on workers compensation data¹
 - Self-reported incidents may lack crucial detail or information
- OSHA Jurisdiction does not cover:
 - Incidents that occur on public streets, highways, or on normal commute²
- Trucking/ Hauling related incidents may be listed on other NAICs codes

Sources: (1) Year One of OSHA's Severe Injury Reporting Program: An Impact Evaluation By David Michaels, PhD, MPH

(2) Updates to OSHA's Recordkeeping Rule: Reporting Fatalities and Severe Injuries Fact Sheet



OSHA Reporting of Severe Injuries

- On January 1, 2015, new laws for OSHA Reportable Injuries and Illnesses
 - Fatalities reported within 8 hours
 - In-patient hospitalization, amputations, loss of eye reported within 24 hours
- Three reporting options:
 - Call the nearest OSHA office
 - Call the OSHA 24-hour hotline at **1-800-321-6742**
 - Report online at www.osha.gov/pls/ser/serform.html
- Reported data publically available



Severe Injuries in Upstream Oil & Gas: A Quick Look (2015 thru 06-2019)

Hospitalizations/Amputations (reportable to OSHA) in Oil and Gas:

- 994 Hospitalizations
- 394 Amputations (may or may not have been a hospitalization)
- Average of 18.4 Hospitalizations/month
- Average of 7.3 Amputations/month

GOAL:

Conduct trending on these Hospitalizations in Oil and Gas (HOG) using the FOG Methodology, OSHA Severe Injury Reports, and associated OSHA Inspection Reports

Data Source: OSHA Severe Injury reports, accessible online at <https://www.osha.gov/severeinjury/index.html>



Hospitalization Injuries in Upstream Oil & Gas: Nature of Injury (Jan 2015 – June 2019)

Nature Type	Count	% of Total
Fracture	384	38.6%
Amputation	107	10.8%
Heat, Burns	81	8.1%
Cuts, Abrasions	50	5.0%
Crushing	45	4.5%
Soreness, Pain	94	9.5%
Other	233	23.4%
TOTAL	994	

Data Source: OSHA Severe Injury reports, accessible online at <https://www.osha.gov/severeinjury/index.html>



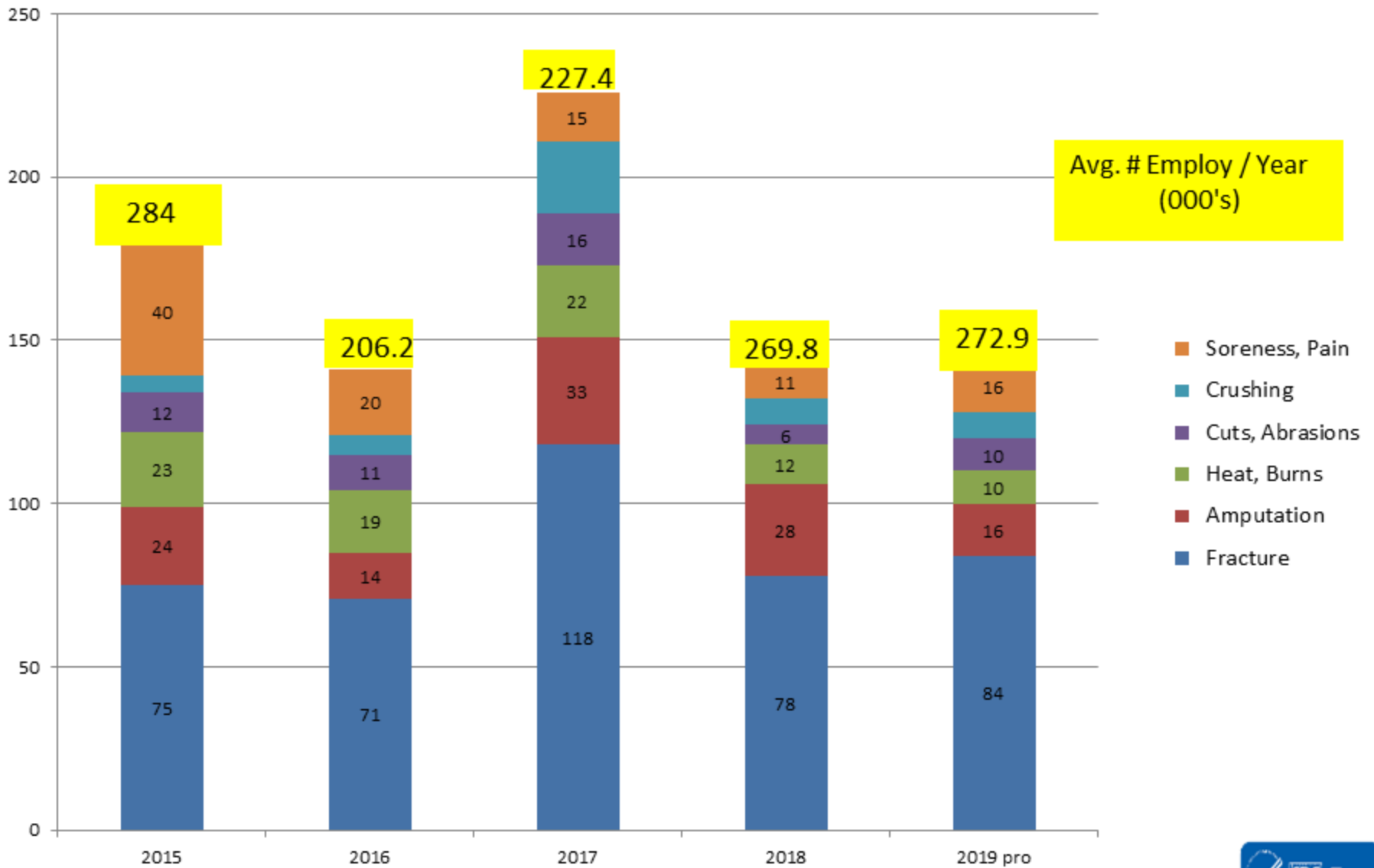
Severe Injuries in Upstream Oil & Gas: Amputation Type (Jan 2015 – June 2019)

Amputation	Count	Percent
Finger(s), Fingernails	203	51.5%
Fingertip(s)	153	38.8%
Toe(s)	13	3.3%
Leg(s)	7	1.8%
Upper and lower limbs	4	1.0%
Hand(s), Less fingers	9	2.3%
Other	14	3.6%
Total	394	

Data Source: OSHA Severe Injury reports, accessible online at <https://www.osha.gov/severeinjury/index.html>



TRENDING HOSPITALIZATION VS EMPLOYEE COUNT PER YEAR



What Are We Seeing Now

- **Additional Orientation Requirements being Put Onto Industry (Basin United, Bakken, SafeLand)**
- **At What Cost and More Importantly for What Benefit**
- **Industry Downturn is Resulting in Additional Labor Cutbacks, Safety/Training are Usually First to Go**
- **More Requirements by the “Middle Man” for Reporting, Audits, etc.**



Leading Industry Publication



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