

US Injury Deaths Statistics (1999 – 2016) Analysis

Tiancheng Xu

July 27, 2020

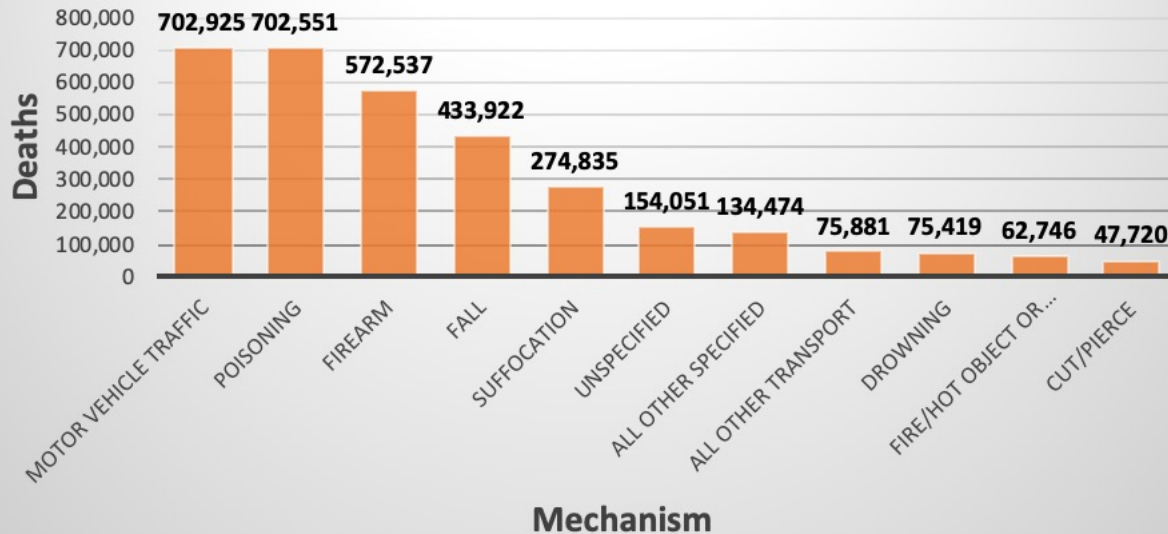
Outline

- Top Injury Death Mechanisms
- Top Injury Death Intentions
- Trends Among Age < 15: More Suffocation, Less Motor Vehicle Deaths
- Trends Among Age 15 – 44: Firearm Surpasses Motor Vehicle Traffic
- Trends Among Age 15 – 74: Sharp Increase in Poisoning
- Trends Among Age 75+: Significantly More Falling Deaths
- Age 75+: Age Specific Rate Significantly Higher
- Male Have 2x Death Rate than Female
- Male Have More Firearm Deaths

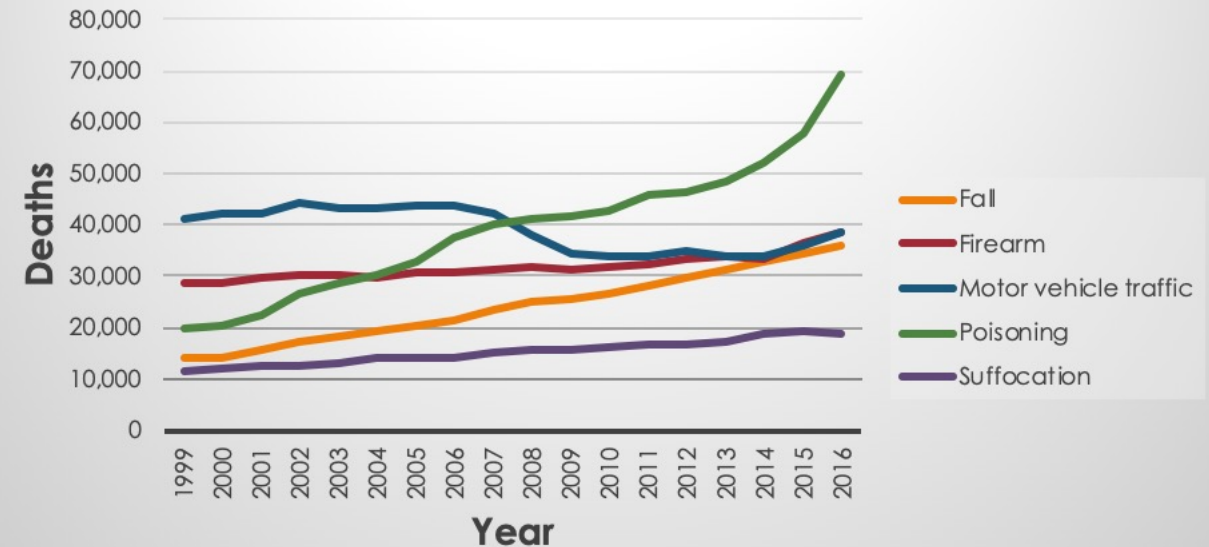
Top Injury Death Mechanisms in 1999 – 2016

3

Total Death by Mechanism



Injury Death Top 5 Mechanisms

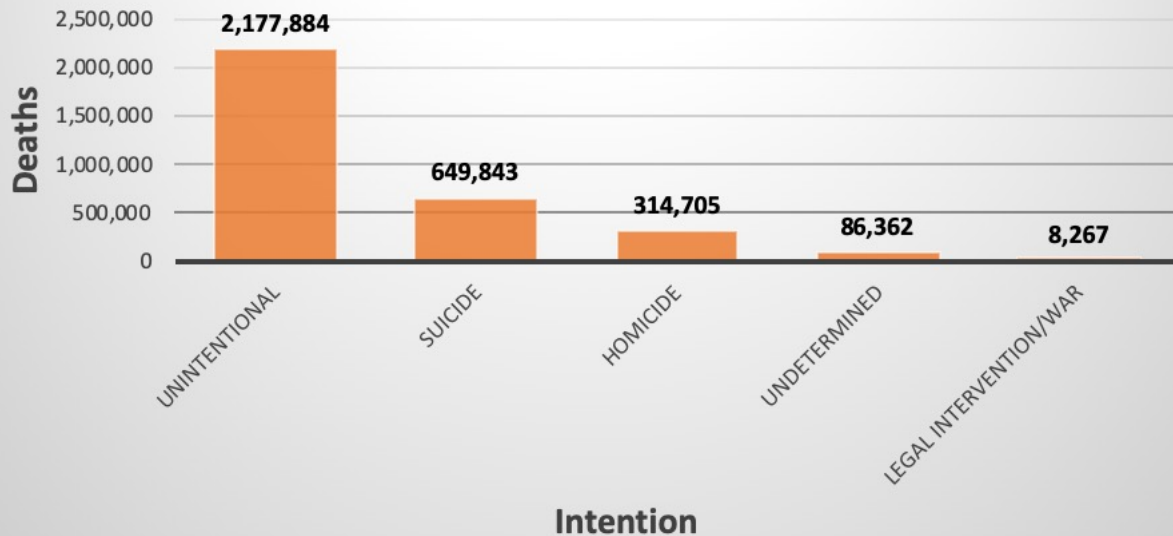


- The five main mechanisms that lead to injury death in 1999 – 2016 are *motor vehicle traffic*, *poisoning*, *firearm*, *fall* and *suffocation* for all sexes, races and age groups.
- *Motor vehicle traffic* starts as the number one cause for injury death from 1999 to 2003; starting in 2004, *poisoning* catches up with *firearm* and becomes the second-biggest cause for injury death.
- In 2008, *poisoning* exceeds *motor vehicle traffic* and becomes the leading cause for injury death; the gap between the two has been growing steadily since then.

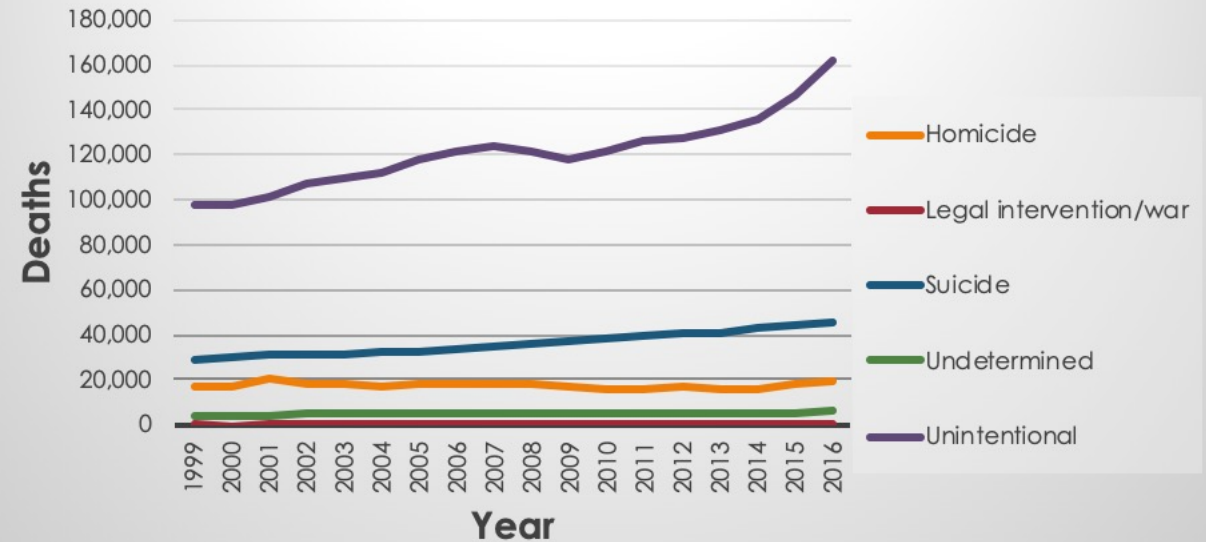
Top Injury Death Intentions in 1999 – 2016

4

Total Death by Intention



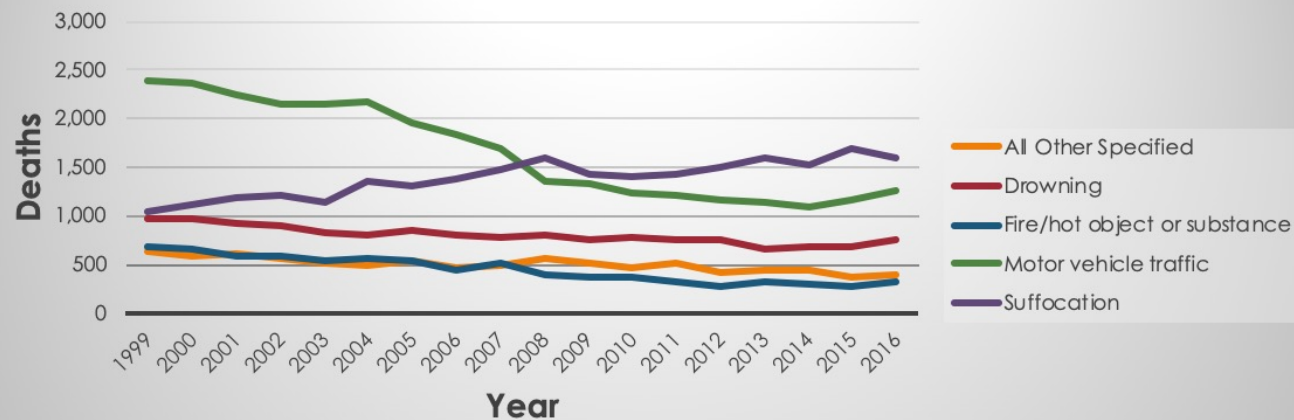
Injury Death Top 5 Intentions



- *Unintentional*, *suicide* and *homicide* are the top 3 intentions for injury death for all sexes, races and age groups in 1999 – 2016.
- *Unintentional* injury death starts at a higher position than the rest and grows at a faster pace as well.
- Each year, *unintentional* injury death accounts for more death cases than the rest of the intentions combined. In 1999 – 2016, *unintentional* injury death accounts for 67.3% of all injury deaths, while *suicide* only accounts for 20.1%.

Trends Among Injurers Aged < 15: More Suffocation Deaths, Less Motor Vehicle Deaths

Injury Death Top 5 Mechanisms

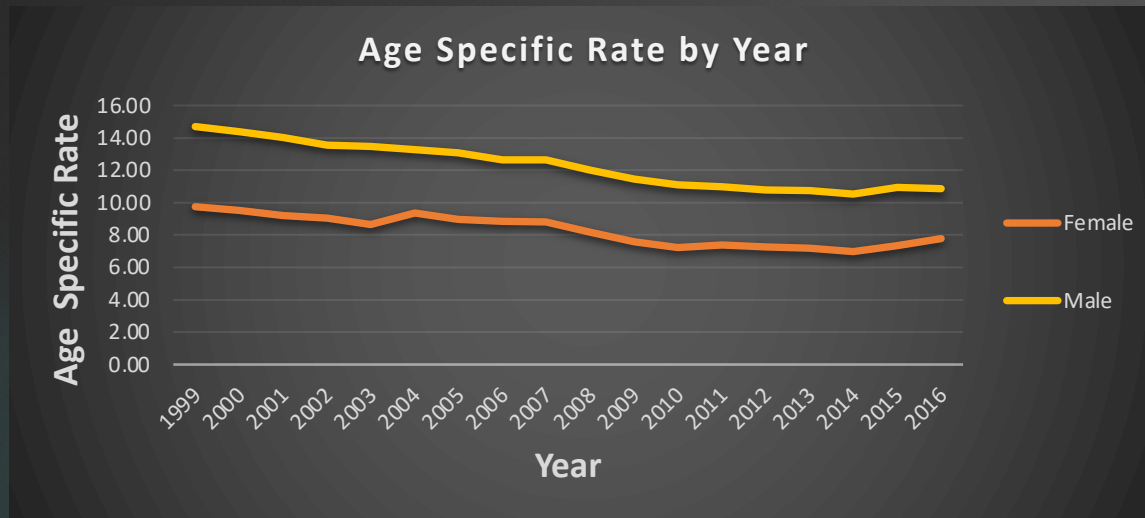


- For injurers under 15, *suffocation* becomes the main cause for injury death after 2008.
 - A report by the Reuters suggests that this is in part due to increasing bed-sharing with parents.
 - It could also be due to the recent shift on how those deaths are categorized in academia.¹
- All other 4 mechanisms sees an overall decrease over the years, especially *motor vehicle traffic*, which had been the leading cause for injury death for injurers under 15 before 2008.
 - According to NHTSA, development of driving safety programs and reduced impaired driving could potentially contribute to the decrease, as more than 50% of victims were passengers of vehicles with drunk drivers.²

¹ <https://www.reuters.com/article/us-health-infants-suffocation/more-u-s-babies-dying-of-suffocation-often-in-bed-idUSKCN1G31YK>

² <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812630>

Trends Among Injurers Aged < 15: Decreasing Age Specific Rate

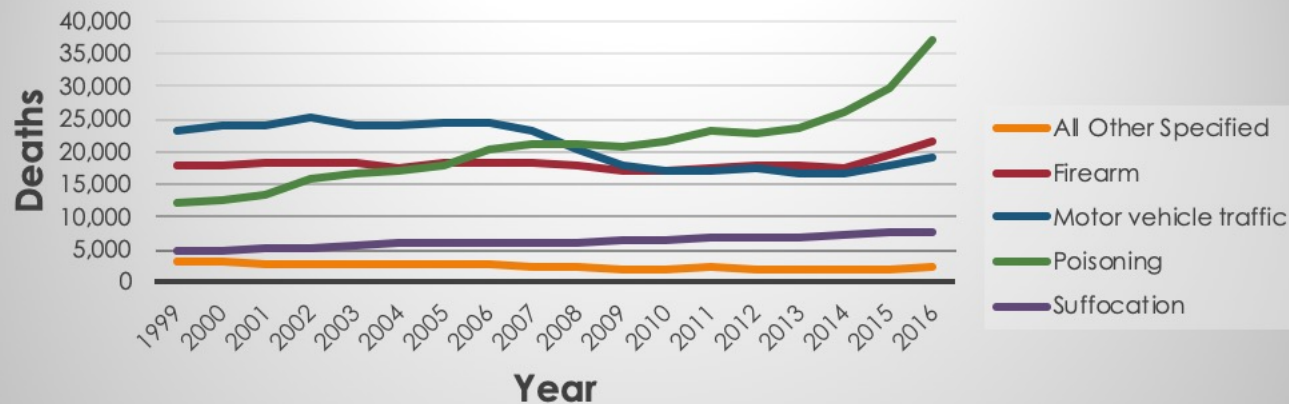


- Unlike any other age group, there is a general downward trend in Age Specific Rate for injurers under 15 during 1999 and 2016, meaning that lower percentage of the injurers die of the injury each year.
 - The decrease can be largely attributed to the decrease in motor vehicle traffic deaths as discussed in the last slide as well as the decrease in other unintentional injury deaths.¹

¹ <https://mchb.hrsa.gov/chusa12/hs/hsc/pages/cim.html>

Trends Among Injurers Aged 15 – 44: Firearm Surpasses Motor Vehicle Traffic

Injury Death Top 5 Mechanisms



- For injurers aged 15 – 44, there is an overall downward trend in *motor vehicle traffic* deaths as well.
- For injurers aged between 15 and 44, *firearm* sees an upward trend and has surpassed *motor vehicle traffic* since 2010. Firearm has become the number one cause for injury death for 15 to 24 year-olds.
 - According to Jason Goldstick, most states that witness an uptick in firearm mortality also report an increase in suicide rate at the same time – “suicide remains the most common mechanism of firearm mortality in most states”.¹ CDC sees a jump of suicide rate after the 2008 financial meltdown.²
 - According to BBC, there has been a slight decrease in gun control support among 18 to 29-year-olds in the last decade.³ Increase inclination towards gun ownership might lead to increased firearm deaths.

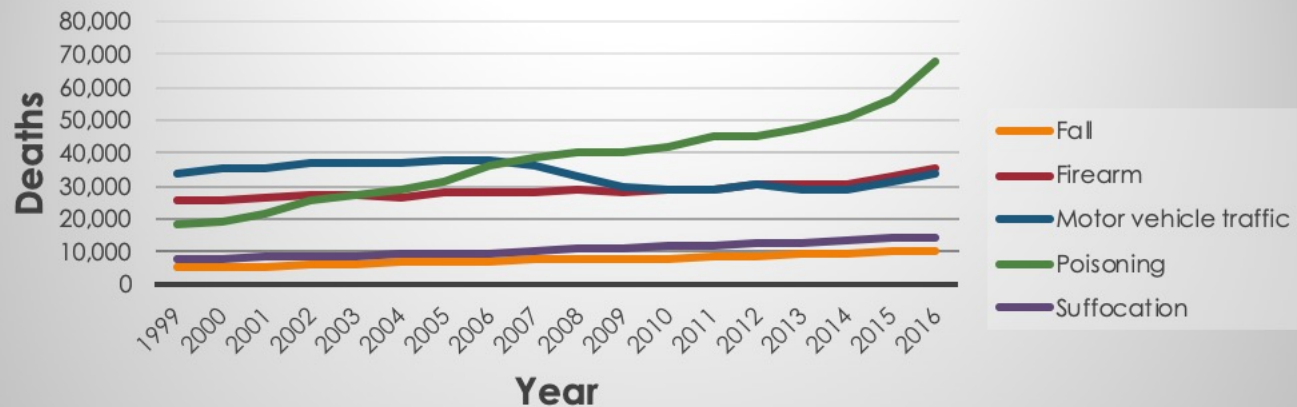
¹ <https://labblog.uofmhealth.org/industry-dx/recent-sharp-rise-firearm-deaths-seen-across-most-states>

² <https://www.cbsnews.com/news/gun-death-statistics-cdc-study-says-gun-deaths-are-on-the-rise-after-years-of-decline>

³ <https://www.bbc.com/news/world-us-canada-41488081>

Trends Among Injurers Aged 15 – 74: Sharp Increase in Poisoning

Injury Death Top 5 Mechanisms



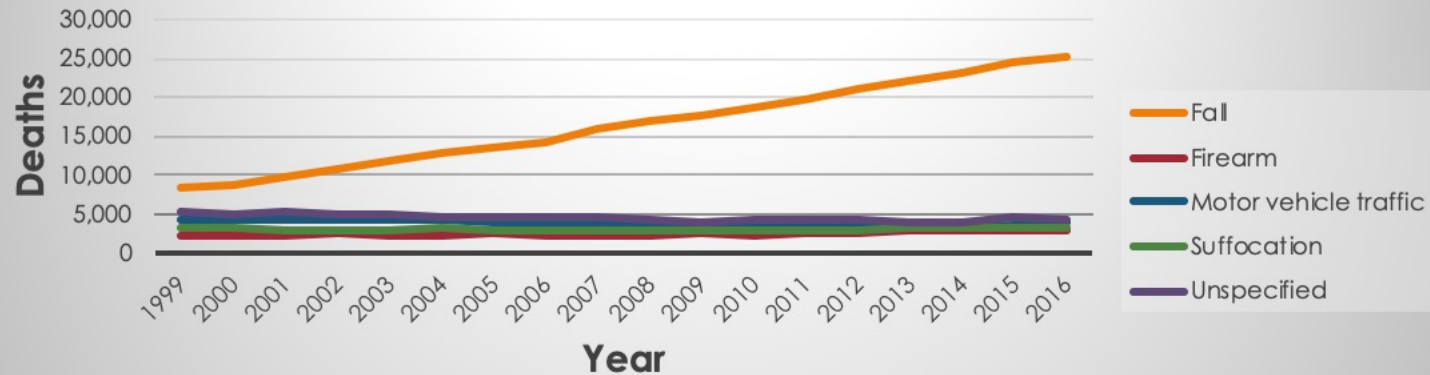
- For injurers aged between 15 and 74, *poisoning* has become the leading cause of injury death and is steadily growing its gap with the rest. As of 2016, *poisoning* accounts for about twice the deaths caused by *firearm*, the second-biggest mechanism for injury deaths for injurers aged 15 – 74.
 - According to CDC, the recent increase in unintentional poisoning can be partly ascribed to increased drug misuse and abuse, and “overdose deaths from prescribed, controlled substances” account largely for the upward trend of poisoning.¹
 - As reported by the Population Reference Bureau, the increase in drug deaths also stems from “abuse of opioid pain relievers” and “the growing availability and comparatively low price of heroin”.²

¹ https://www.cdc.gov/pictureofamerica/pdfs/Picture_of_America_Poisoning.pdf

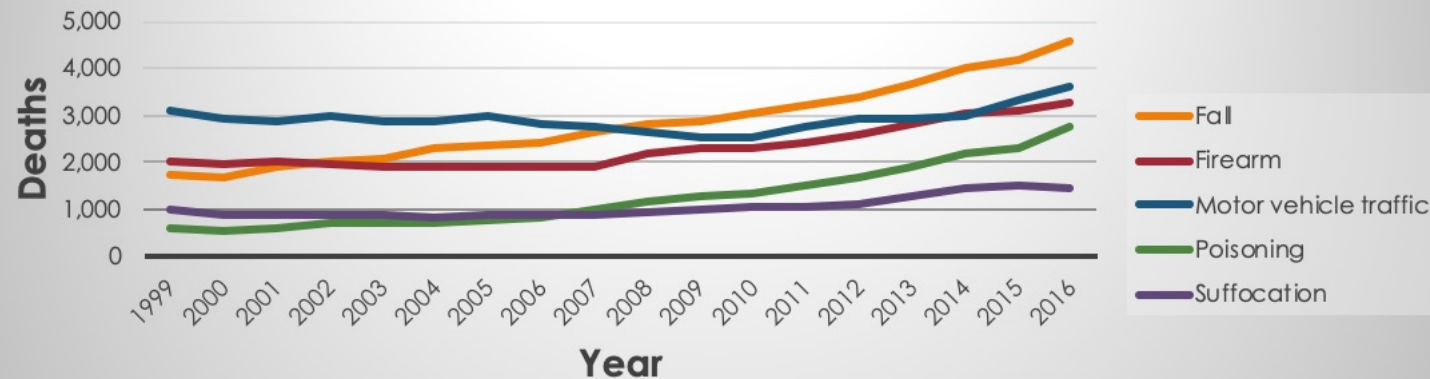
² <https://www.prb.org/young-adult-suicide/>

Trends Among Injurers Aged 75+: Significantly More Deaths Caused by Falling

Injury Death Top 5 Mechanisms (Age 75 +)



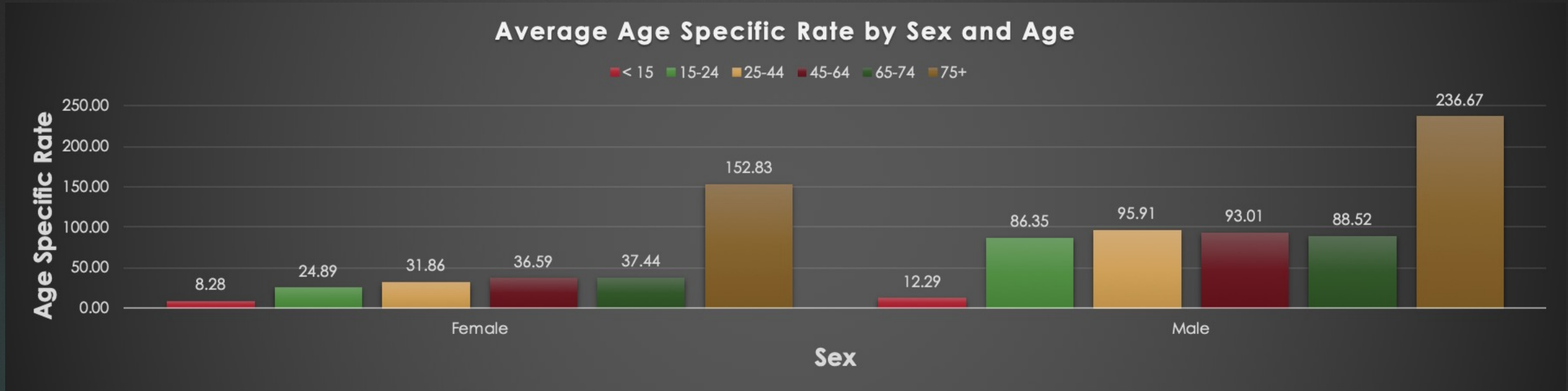
Injury Death Top 5 Mechanisms (Age 65 – 74)



- *Fall* grows and becomes the biggest cause for injury death for injurers aged 65 and beyond.
- Injurers aged 75 + have a significantly higher number of deaths from *falling* and a higher growth rate in *falling* deaths compared with other age groups (even with 65 – 74 age group).
 - A study suggests that many old adults are taking modern medications “with side effects that can increase the risk of falling”, and that “the “oldest old” may be most at risk”.¹
 - The 2019 study by Hartholt et al. suggests that activity pattern might explain the rising fall deaths, as old people are embracing the new lifestyle and participating in more outdoor activities.²

¹ <https://www.reuters.com/article/us-health-elderly-falls/more-elderly-americans-dying-from-falls-idUSKCN1T5213>
² https://jamanetwork.com/journals/jama/fullarticle/2735063?questAccessKey=df56bbcc-17ca-47b0-986f-77bf6d03962e&utm_source=For_The_Media&utm_medium=referral&utm_campaign=ftm_links&utm_content=tf&utm_term=060419

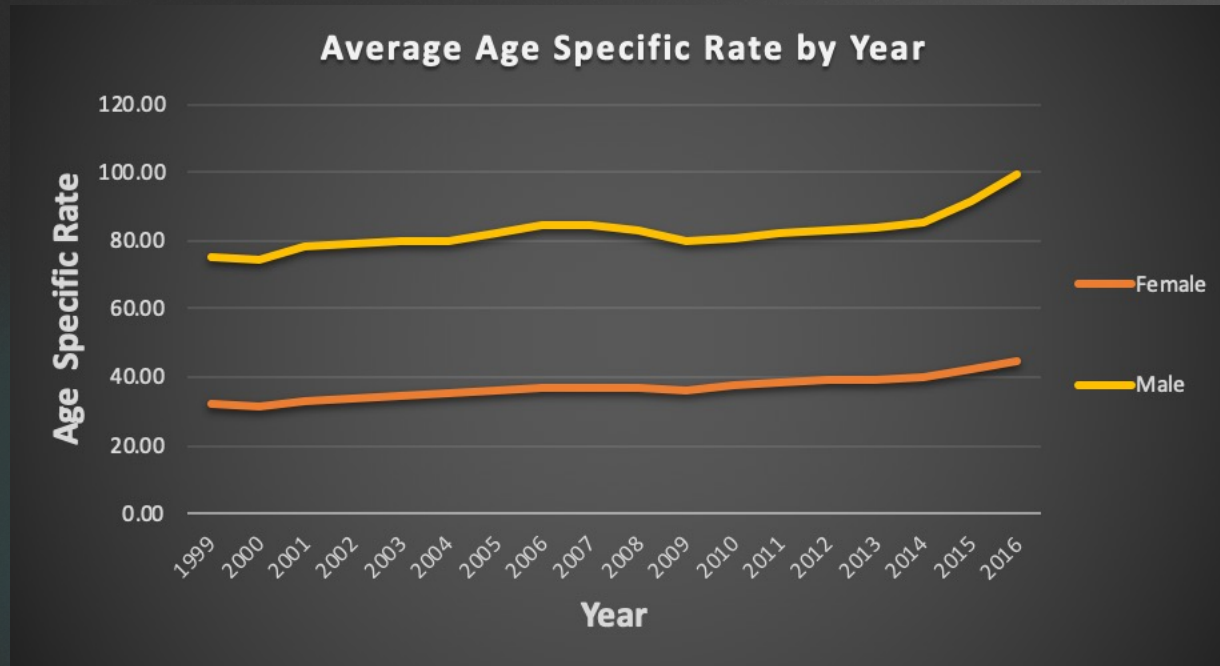
Age Specific Rate Significantly Higher for Injurers Aged 75+



- In 1999 – 2016, people over 75 years old have a significantly higher Age Specific Rate compared to other age groups for both sexes, meaning that people over 75 are remarkably more likely to die of injury.
 - “Frailty and pre-existing medical condition” that accompany the advance of age greatly decrease the possibility that an old individual will recover or get over the injury; even if they do recover, most of them will find it hard to achieve the previous level of physical functionality.¹

¹ <https://www.agingcare.com/articles/falls-prove-fatal-for-elderly-patient-149687.htm>

Male Have 2x Death Rate



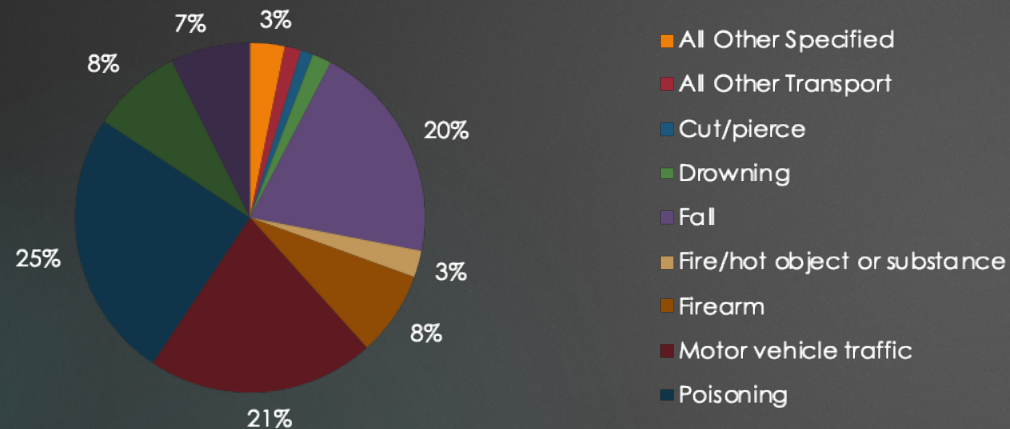
- In 1999 – 2016, male have a much higher average Age Specific Rate (more than two times) than female.
 - A study by Sorenson suggests that no evidence can support that men are biologically more vulnerable to injury death. Rather, the lifestyles and behaviors that men generally opt for might expose them to greater injury risk, and higher “alcohol use is one example”.¹

¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3222499/>

Male Have More Firearm Deaths

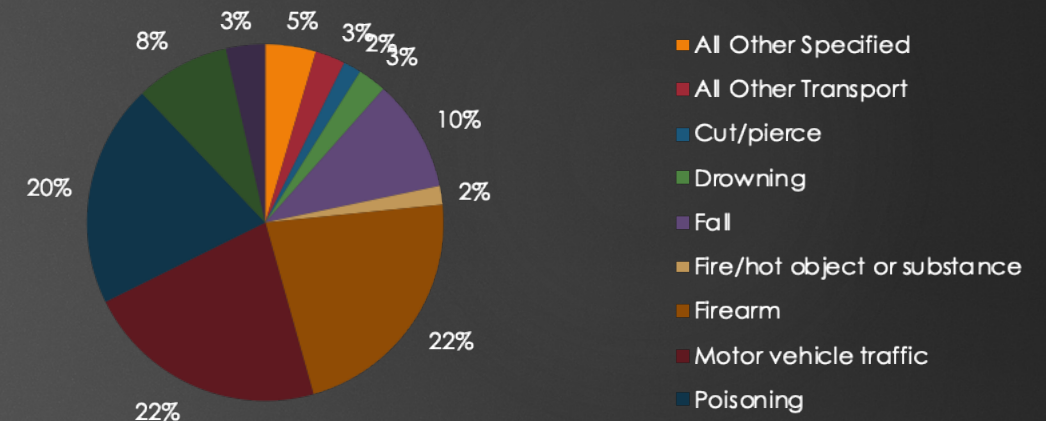
Female

Deaths by Mechanism



Male

Deaths by Mechanism



- Much higher percentage of *firearm* injury death cases occurred among male and *firearm* is becoming the largest cause of death for male.
 - According to an article by Quartz, men are more likely to become victims of gun-related suicides and homicides simply because men are three times more likely to own guns than women and guns are “historically, stereotypically a masculine sort of thing”.¹
 - As a research in 2017 suggests, about 62% of gun owners are male.²

¹ <https://qz.com/720473/gun-crime-victimizes-men-the-most-which-is-also-why-its-so-hard-to-stop/>

² <https://www.pewresearch.org/fact-tank/2017/06/29/how-male-and-female-gun-owners-in-the-u-s-compare/>

Conclusion

- Motor vehicle traffic is gradually dropping out of its first place in injury deaths cause; fall, poisoning and firearm are rapidly growing into the main causes, and each has its own growth pattern and impact on different age groups.
- Unintentional injury accounts for the majority of injury death; number of suicide cases is rising.
- Rising of poisoning is positively related to overdose of prescribed drugs.
- Majority of firearm death is suicide in most states.
- Elderly have a much higher injury death rate across the timeline.
- Men have significantly more cases of deaths related to firearm and a much higher death rate than women.