Behavioral causes of driver/pedestrian fatalities
Portland, Oregon January 2017 - January 2020

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Purpose:

The goal of this study is to provide feedback and education to our community about what behaviors to focus on to avoid pedestrian fatalities. This is accomplished by identifying the top causes. A traffic instructor can then explain the hazard avoidance techniques for each cause.

Identifying the top problems and taking action on them is a component of Vision Zero.

Details:

- Some pedestrian fatalities had unknown or ambiguous causes. In some cases, our volunteers made judgement calls about what caused them. This is a source of uncertainty. To be confident about results, we require a large number of data to spread out and minimize uncertainty, and to see clear trends. When trusting a collision study, I personally want to see at least 50 police reports analyzed. This study had 48, which was enough to see clear trends.
- We focused on the behaviors described in the police report, rather than what the police ultimately cited for.
- We assume the police report is 100% percent true. The police report is the only source of information we have.
- This study is only interested in the active behavioral causes of the fatality, not incidental factors. This distinction is important.

  As examples, if a driver jumps a curb and kills an intoxicated pedestrian standing on the sidewalk, we don't count that intoxication as a cause of the fatality. That pedestrian's intoxication did not actively cause the fatality. Even sober pedestrians have difficulty avoiding death in that situation. Similarly, if a pedestrian jumps in front of an intoxicated driver, giving the driver no time to react, we don't count that intoxication as a cause of the fatality. I recognize that intoxicated driving is illegal and dangerous, but in that situation, the intoxication didn't cause the death, and sober drivers couldn't have done anything different.
- For a given fatality, multiple behaviors may have contributed. We tallied every behavior described in the police report for each fatality. Therefore, in our final graph of results, the percentages add up to over 100%.

Procedures:

- Volunteers received a 90 minute training session to read police reports. The training included the following discussion:
  - Why police reports are the gold standard of information in crash studies
  - Limitations of crash reports (mistakes or police exaggeration, windshield bias, survivor bias, hit & run)
  - A thorough review of Oregon crosswalks: where crosswalks are located, who's allowed in crosswalks, how pedestrians signal their right to cross, and when drivers must yield.
  - Reading and analyzing a report together, and gathering data in our spreadsheet.
- Volunteers were taught the meaning behind the behavioral categories, and how to read a police report and assign causes. Volunteers were asked to provide written justification for every cause they tallied, using statements from the police report.
- To prevent mistakes and even out judgment calls, at least two volunteers read each police report and provide their spreadsheet of behavioral causes. When discrepancies arose between volunteers, I made the final judgment call, using the justifications each volunteer provided for why they chose their causes.

Data we threw out:

Pedestrian-related laws and best practices require a certain level of mental and physical capability. Violations will occur from people with physical or permanent mental inability to follow traffic rules. Because this is an education study, we did not tally causes from people with physical or permanent inability to follow traffic rules. Those are

separate issues, with solutions beyond the realm of education. This study analyzes people of sound body and mind that we can reasonably hold accountable to follow traffic rules, in an effort to educate people who we can reasonably hold accountable to follow traffic rules. For these reasons, we excluded causes from:

- Anyone under age 13. We're not interested in behaviors of children too young to know what they're doing.
- Pedestrians with severe physical difficulty walking. They can't make it across the crosswalk within the allotted time, and can't reasonably be asked to walk an extra distance to a corner just to cross at the crosswalk. We only know that the pedestrian had severe difficulty walking when the police report describes it. There are likely more pedestrians in this category than we realized, but we don't know it if the police report doesn't state it.
- Pedestrians exhibiting permanent mental inability to follow traffic laws. This includes aberrant behavior by those experiencing houselessness, such as slowly pushing a shopping cart in front of drivers or dancing in the streets.

  I use the word *permanent* mental inability here to distinguish from intoxication, which I consider to be temporary. This study does include intoxication as a cause of fatality.

  We only know the pedestrian had permanent mental inability to follow traffic laws when it's written about in the police reports (from witness statements, video, and interviews with friends and family). There are likely more pedestrians in this category, but we don't know it if the police report doesn't state it.
- Suicides. This transcends pedestrian violations. It's a different issue entirely.

Behaviors defined:

Motorist Speed Excessive to Conditions – Oregon calls this the basic speed rule, stating in law that speed must be reasonable with respect to all traffic conditions. The practical way to understand this, as taught in traffic classes, is to imagine a child or log laying on the road. If you can stop in time, you're traveling at speeds reasonable to conditions. We define the speed limit as exactly what it is, the limit of speed when all conditions are optimal (sunny, clear, etc). If conditions are less than optimal, speed must be decreased.

We tallied this when drivers exceeded the speed limit, or drove at/near the limit in conditions where they should have slowed (rain, darkness, crowded areas, etcetera). Drivers often admitted that they didn't have enough time to stop, which means either the pedestrian entered the crosswalk too suddenly or the driver was too fast for conditions. We tallied this when drivers admitted that they didn't have enough time to stop for the pedestrian, and evidence showed that the pedestrian had been in the crosswalk for a reasonable time for the driver to stop, and when other drivers were clearly able to avoid hitting the pedestrian.

Motorist fails to yield to pedestrian in crosswalk or sidewalk – We use the Oregon definition of crosswalk, and the concepts described to us by TCNF Law and Ray Thomas's book "Legal Guide for Persons on Foot".

Pedestrian fails to yield to motorist on roadway while crossing road outside crosswalk – In Oregon, pedestrians may cross the road anywhere, but when outside of crosswalks, must yield to drivers. The concepts are described in Ray Thomas's book "Legal Guide for Persons on Foot".

Motorist fails to yield while turning – This is a top cause of crashes for driver/driver, driver/cyclist, and driver/pedestrian. In Drivers Ed, you were taught to "turn your head before you turn your wheels". Because this is such a problem, this issue deserves educational attention and its own category. We are at great risk for hitting someone else when we turn and don't ensure the path is clear.

Pedestrian intoxicated – Police reports determined intoxication through blood draw or through reconstruction of events, where pedestrian was seen drinking prior.

We tallied this when intoxicated pedestrians also violated other laws or best practices, because in those situations, we assume the intoxication actively caused the fatality. We did not tally this when intoxication was an incidental factor, such as the intoxicated pedestrian walking otherwise legally and safely on sidewalks or crosswalks, and hit by a driver. Even sober pedestrians get killed in those situations, and we do not assume the intoxication actively caused to that fatality.

Motorist passes a vehicle stopped for pedestrian – This is more of a best practice than a law. When a vehicle is stopped for any reason on the road, there is a good chance it is yielding to something in front of it. We must stop and look both ways to ensure the path is clear before proceeding past the stopped vehicle.

Oregon has a law about this, but it's watered down and only applies in limited situations. It only applies at crosswalks, and our attorneys at TCNF Law advise that it only applies to drivers in the same lane as the vehicle that has stopped.

The best practice applies for stopped vehicles anywhere on the road, and applies drivers in all lanes.

Motorist intoxicated – Police reports determined intoxication through blood draw immediately at the scene or through officer examination.

We tallied this when intoxicated motorists exhibited other behaviors on this list, because in those situations, we assume the intoxication actively caused the fatality. We did not tally this when intoxication was an incidental factor, such as when a pedestrian jumped in front of the driver, all witnesses say the driver had no opportunity to react, and the driver turned out to be intoxicated. Even sober drivers could not have reacted differently.

Motorist fails to obey traffic control device (stop sign, red light, etc) – the name of this category accurately describes it.

Motorist distracted by electronic device (cell phone, etc) – At the scene, an officer takes the driver's phone and photographs the call log, text log, and any other logs they need. This is how they determine if a driver was texting or calling at the time of the crash. However, there are many things a driver could have been doing on a cell phone that wouldn't be captured in the few logs the police photograph. In one case, even though police photographed the logs and had no evidence the driver was on his phone, the driver later admitted he was "on his cell phone and not paying attention to the road". Therefore, we recognize that this behavior is more common than police realize.

We tallied this if the driver was using any electronic device in any manner. This is more of a best practice, as the law allows electronic device usage in certain scenarios. Similar to intoxication, we only tallied this when the distraction actively caused the fatality and combined with other behaviors on this list.

Pedestrian fails to obey traffic control device (don't walk sign) – the name of this category accurately describes it.

Motorist fails to yield while entering/exiting parking space – Drivers are responsible to ensure the path around them is clear when exiting or exiting a parking lot. This applies on private property (parking lots, driveways, etc) and on public streets (on-street parking, etc).

This is a category used in other crash studies. This occurs in a low percentage of crashes, but is still worth education.

Motorist fails to stop before sidewalk when emerging from driveway, alley, or parking lot – this is Oregon law. It is also best practice even if the law didn't exist.

Pedestrian enters crosswalk too suddenly – When there's no "Walk Sign" at a crosswalk, in Oregon, pedestrians are required to invoke their right of way before crossing. This gives drivers a chance to pedestrians them and stop. Pedestrians must wait until drivers can reasonably stop. Pedestrians should not expect drivers to stop in the middle of an intersection. The concepts are described in Ray Thomas's book "Legal Guide for Persons on Foot".

Pedestrian distracted by electronic device (cell phone, etc) – To determine if a pedestrian was using an electronic device during a fatal crash, police reports rely on video, witness statements, or analysis of objects strewn about the scene.

We tallied this if the pedestrian was using any electronic device in any manner. Similar to intoxication, we only tallied this when the distraction actively caused the fatality and combined with other behaviors on this list.

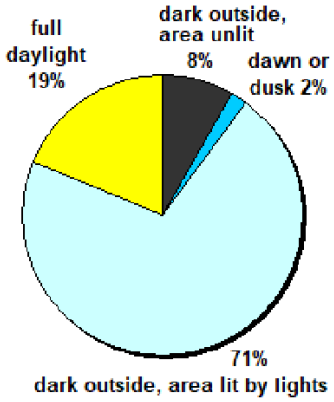
Results:

At fault	Cause	Occurred in percentage of fatalities
Driver	speed excessive to conditions	75%
Driver	fails to yield to pedestrian established in crosswalk or sidewalk	44%
Pedestrian	fails to yield while in road outside crosswalk	21%
Driver	fails to yield while turning	13%
Pedestrian	intoxicated	13%
Driver	passes a vehicle stopped for pedestrian	10%
Driver	intoxicated	10%
Driver	fails to obey traffic control device (stop sign or red light)	4%
Driver	distracted by electronic device (cell phone, etc)	4%
Pedestrian	fails to obey traffic control device (don't walk)	4%
Driver	fails to yield while entering/exiting parking space	2%
Driver	fails to stop before sidewalk when emerging from driveway or parking lot	0%
Pedestrian	distracted by electronic device (cell phone, etc)	0%
Pedestrian	enters crosswalk too suddenly	0%

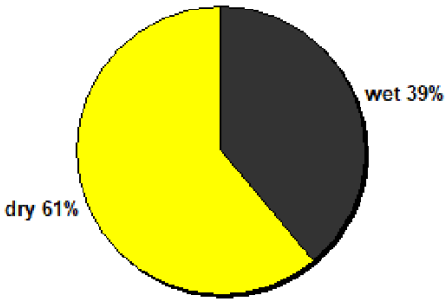
Pedestrian Fatalities
Portland, OR
Jan 2017 - Jan 2020
multiple causes can contribute to a single fatality

full report at https://oregonwalks.org

LIGHTING



SURFACE CONDITIONS



WEATHER