

RE-EVALUATING THE PREVALENCE OF POLY-DRUG-POSITIVE DRIVING IN WASHINGTON

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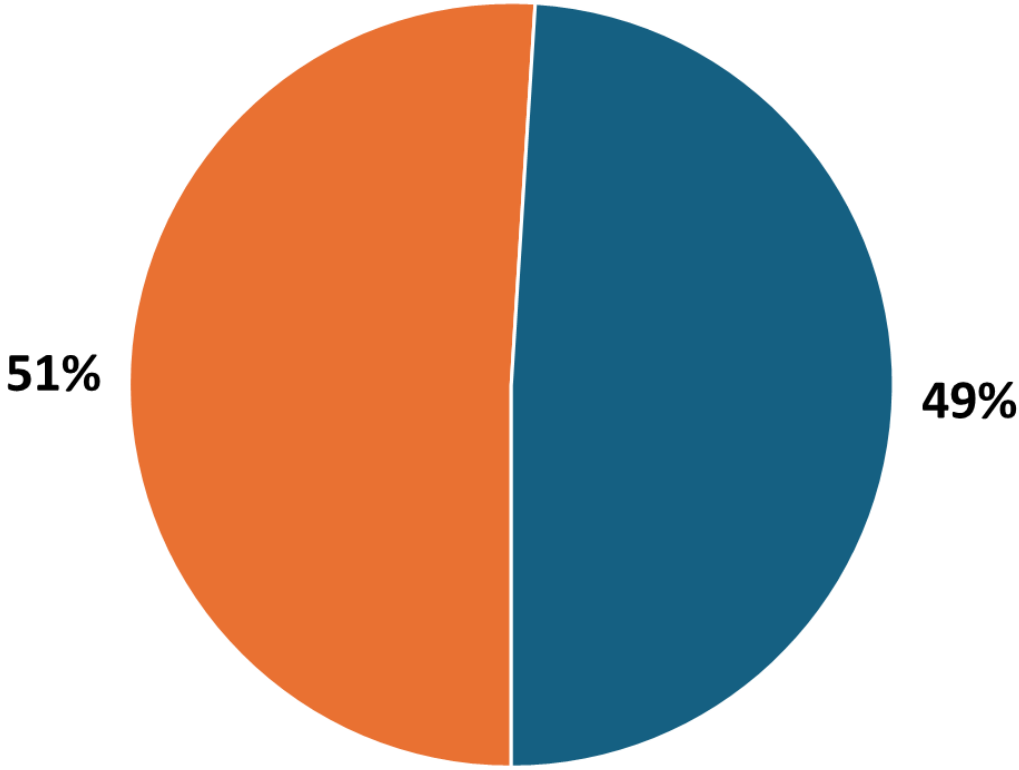
Traffic Safety Lessons from Washington State

January 24, 2024

WHAT IS A POLY-DRUG POSITIVE DRIVER?

1. A driver that is positive for two or more drugs that are not alcohol - as confirmed by toxicology testing
 - Example: THC + methamphetamine
2. A driver that is positive for alcohol and one or more other drugs - as confirmed by toxicology testing
 - Example: Alcohol + THC

Proportion of Alcohol and/or Drug-Positive Driver Involved Fatalities in Washington, 2012-2022*

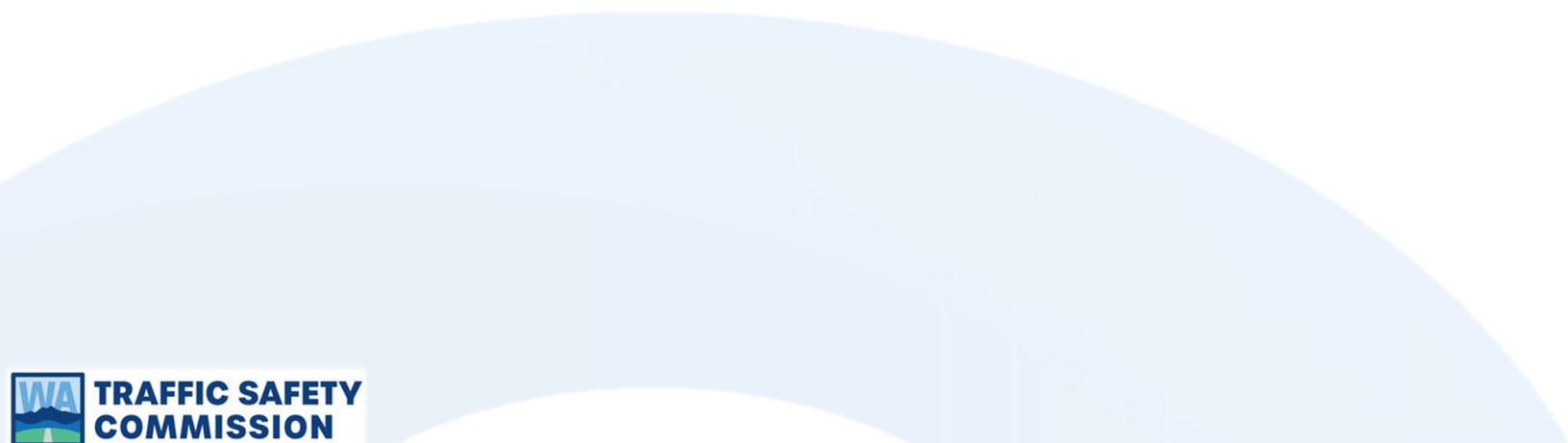


■ Yes, Impaired Driver-Involved ■ No

*Preliminary

DATA – WTSC CODED FATAL CRASH (CFC) FILES

- Coded data from
 - Police traffic collision reports
 - Drivers license history
 - Death certificates
 - Toxicology results

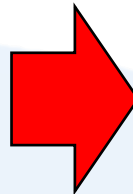


SCENARIO



Toxicology Results

Drug 1	Caffeine
Drug 2	Carboxy-THC
Drug 3	Diltiazem
Drug 4	Ibuprofen
Drug 5	Midazolam



Toxicology Results

Drug 1	--
Drug 2	--
Drug 3	--
Drug 4	--
Drug 5	--

METHODS

- Removed non-impairing and unrelated substances
- Removed non-active metabolites when the parent drug was absent
- Matched parent drugs with their metabolites
- Removed non-impairing pharmaceutical drugs when alcohol was absent
- Removed toxicology screening results when confirmatory results were present

REMOVED NON-IMPAIRING AND UNRELATED SUBSTANCES

The following drugs and substances were removed:

- Acetaminophen
- Amantadine
- Benzene
- Caffeine
- Carboxyhemoglobin
- Etomidate
- Glucose
- Ibuprofen
- Ketones
- Laudanosine
- Levamisole
- Midazolam
- Naloxone
- Nicotine/Cotinine
- Quinine
- Salicylate
- Tadalafil
- Theobromine
- Trimethoprim
- Yohimbine

REMOVED NON-ACTIVE METABOLITES WHEN THE PARENT DRUG WAS ABSENT

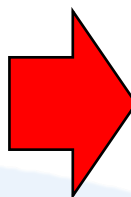
The following non-active metabolites were removed when the parent drug was absent:

- Benzoyllecgonine (Cocaine)
- Carboxy-THC (Delta-9 THC)
- Desmethyloperamide (Loperamide)
- Ecgonine methyl ester (Cocaine)
- Norfentanyl (Fentanyl)
- Ritalinic Acid (Methylphenidate)

MATCHED PARENT DRUGS WITH THEIR METABOLITES

- If 'Delta-9 THC' and 'Carboxy-THC' are present, this ***should not*** be treated as two separate impairing drugs, but rather a single drug that has been/is being metabolized – 'Delta-9 THC /Carboxy- THC'

<i>Toxicology Results</i>	
Drug 1	Delta-9 THC
Drug 2	Carboxy-THC
Drug 3	--



<i>Toxicology Results</i>	
Drug 1	Delta-9 THC/Carboxy-THC
Drug 2	--
Drug 3	--

Parent-Metabolite Compounds**Parent-Metabolite Compounds****Amitriptyline/Nortriptyline****Alprazolam/Alprazolam Metabolite****Buprenorphine/Norbuprenorphine****BupropionBupropion Metabolite****Delta-9 THC/11-Hydroxy Delta-9 THC****Delta-9 THC/Carboxy-thc****Delta-9 THC/Carboxy-THC/11-Hydroxy Delta-9 THC****Chlordiazepoxide/Nordiazepam****Citalopram/Desmethylcitalopram****Citalopram/Norcitalopram****Clonazepam/7-Aminoclonazepam****Cocaine/Benzoylecgonine****Cocaine/Benzoylecgonine/Cocaethylene****Cocaine/Benzoylecgonine/Ecgonine Methyl Ester****Cocaine/Benzoylecgonine/Ecgonine Methyl Ester/Cocaethylene****Codeine/Morphine****Diazepam/Nordiazepam****Doxepin/Desmethyldoxepin****Fentanyl/Norfentanyl****Fluoxetine/Norfluoxetine****Hydrocodone/Dihydrocodeine****Hydrocodone/Hydromorphone****Hydrocodone/Dihydrocodeine/Hydromorphone****Isopropanol/Acetone****Ketamine/Norketamine****Lidocaine/Monoethylglycinexylidide****Methadone/Eddp****Methamphetamine/Amphetamine****Oxycodone/Oxymorphone****Propoxyphene/Norpropoxyphene****Pseudoephedrine/Norpseudoephedrine****Risperidone/9-Hydroxyrisperidone****Sertraline/Desmethylsertraline****Sertraline/Norsertraline****Topiramate/Topiramate Metabolite****Tramadol/O-Desmethyltramadol****Venlafaxine/Norvenlafaxine****Venlafaxine/O-Desmethylvenlafaxine****Verapamil/Norverapamil**

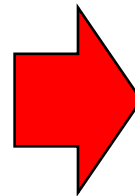
REMOVED NON-IMPAIRING PHARMACEUTICAL DRUGS WHEN ALCOHOL WAS ABSENT

The following pharmaceutical drugs were removed when alcohol was absent:

- Dextromorphan (Antitussive)
- Diltiazem (Calcium channel blocker)
- Glipizide (Sulfonylureas)
- Levetiracetam (Anticonvulsant)
- Metformin (Biguanides)
- Nifedipine (Calcium channel blocker)
- Olanzapine (Antipsychotic)
- Phenytoin (Anticonvulsant)
- Primidone (Anticonvulsant)
- Pseudoephedrine (Decongestants)
- Norpseudoephedrine (Decongestants)
- Quetiapine (Antipsychotic)
- Risperidone (Antipsychotic)
- 9-Hydroxyrisperidone (Antipsychotic)
- Verapamil (Calcium channel blocker)
- Norverapamil (Calcium channel blocker)
- Warfarin (Anticoagulant)
- Zonisamide (Antiepileptic)

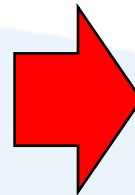
REMOVED TOXICOLOGY SCREENING RESULTS WHEN CONFIRMATORY RESULTS WERE PRESENT

<i>Toxicology Results</i>	
Drug 1	Cannabinoids
Drug 2	Delta-9 THC/Carboxy-THC
Drug 3	--



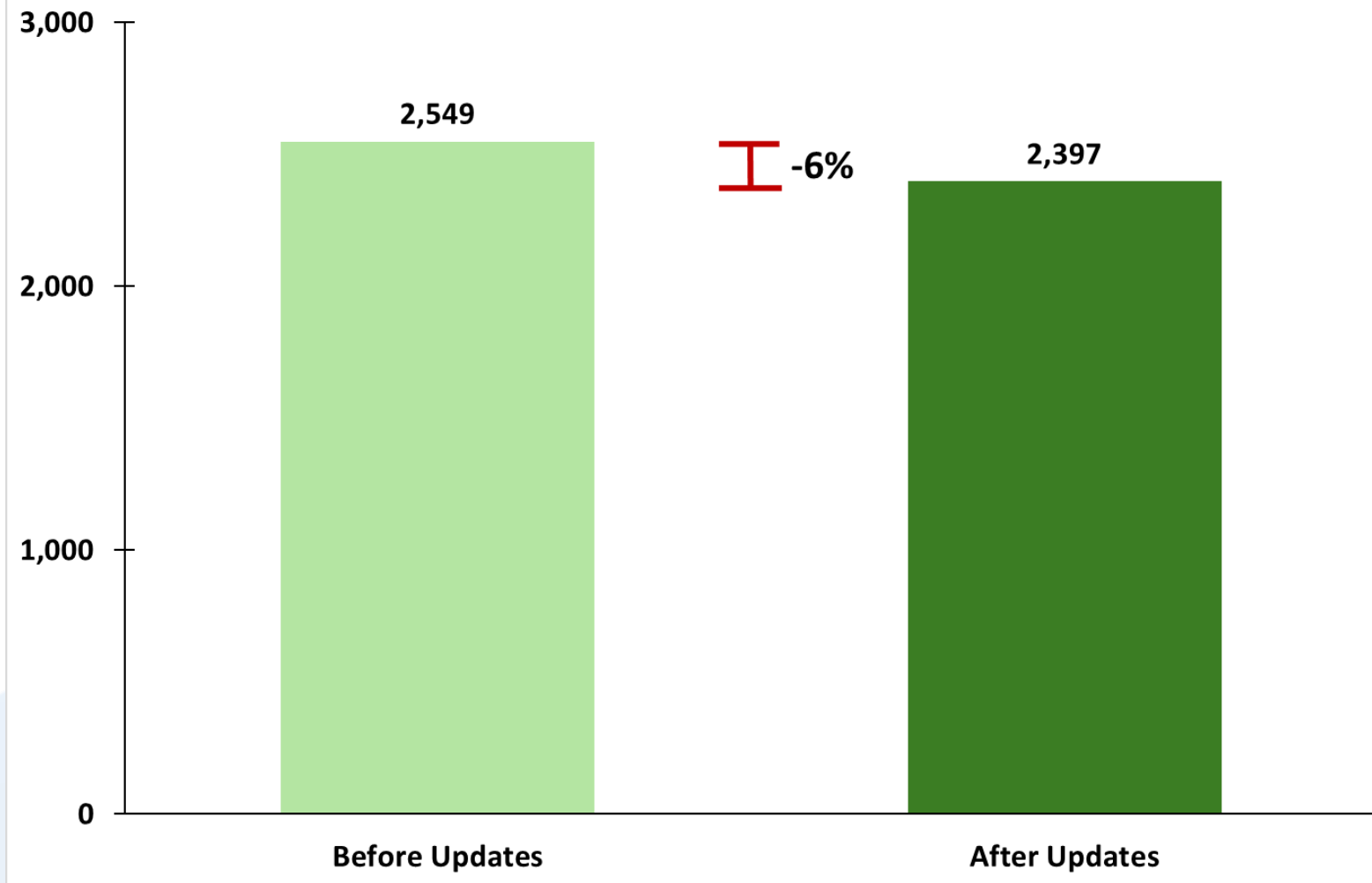
<i>Toxicology Results</i>	
Drug 1	Delta-9 THC/Carboxy-THC
Drug 2	--
Drug 3	--

<i>Toxicology Results</i>	
Drug 1	Codeine
Drug 2	Opiates
Drug 3	Oxycodone

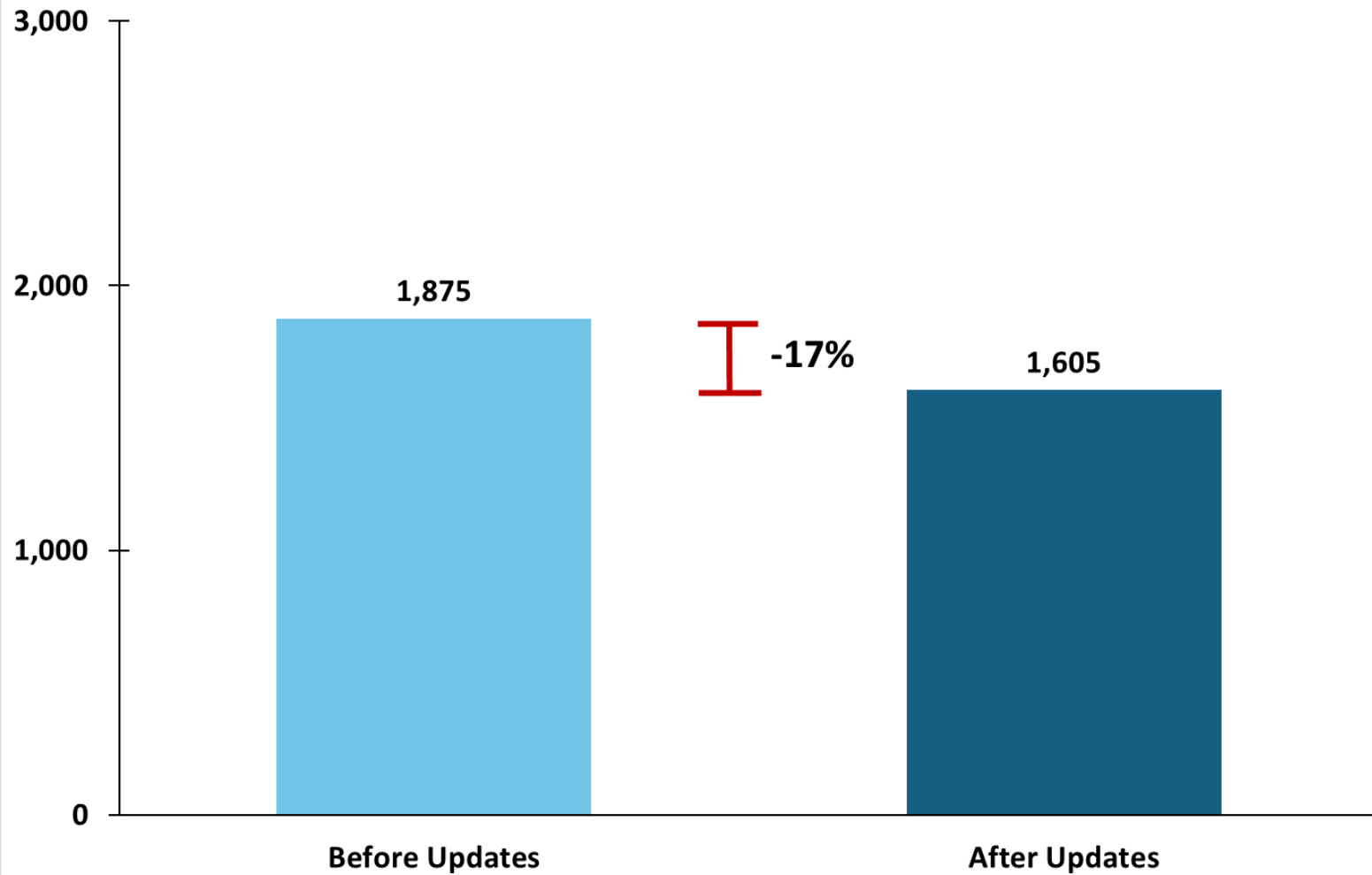


<i>Toxicology Results</i>	
Drug 1	Codeine
Drug 2	Oxycodone
Drug 3	--

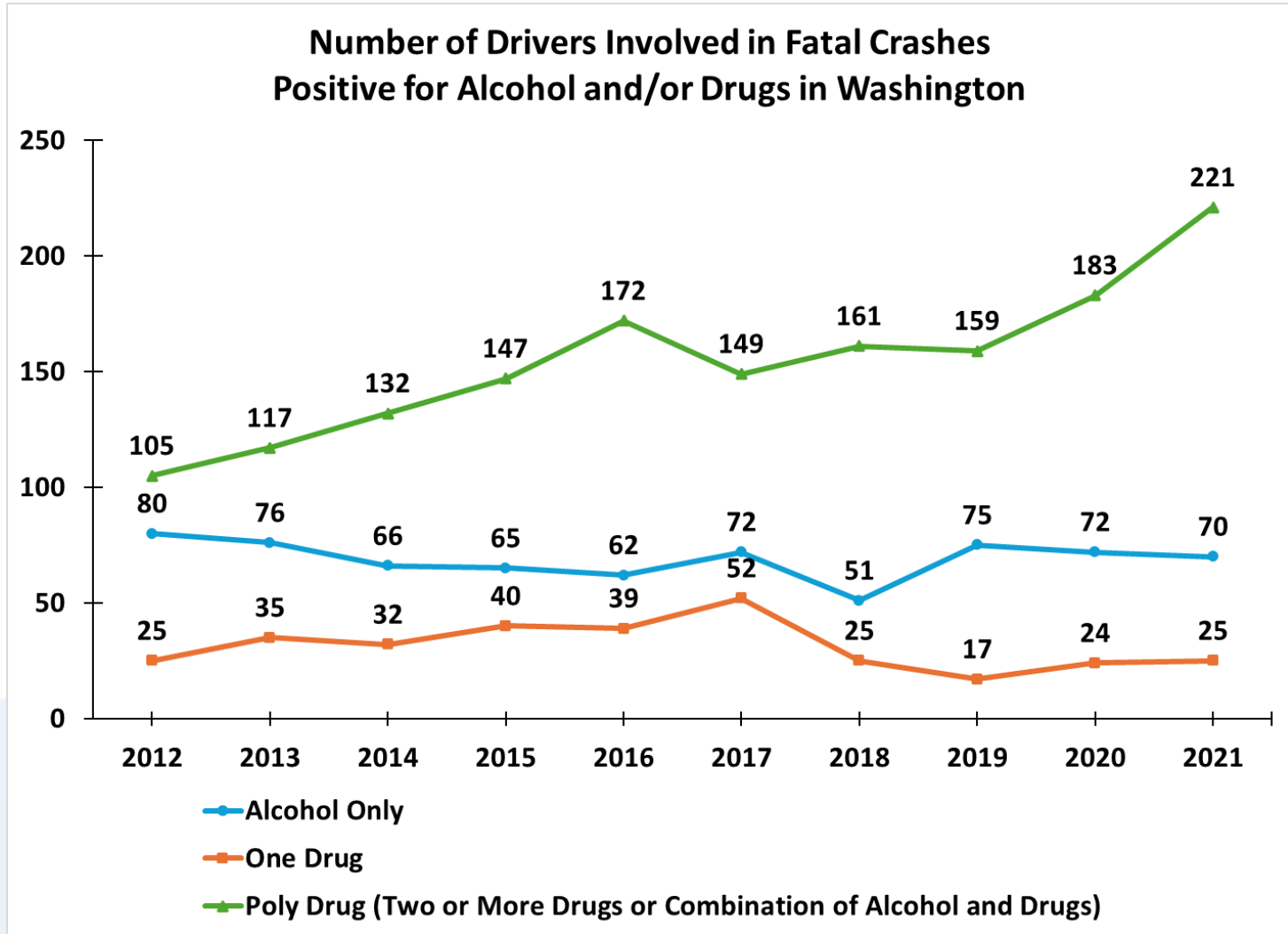
Total Number of Drivers Involved in Fatal Crashes Positive for Alcohol and/or Drugs in Washington, 2012-2021



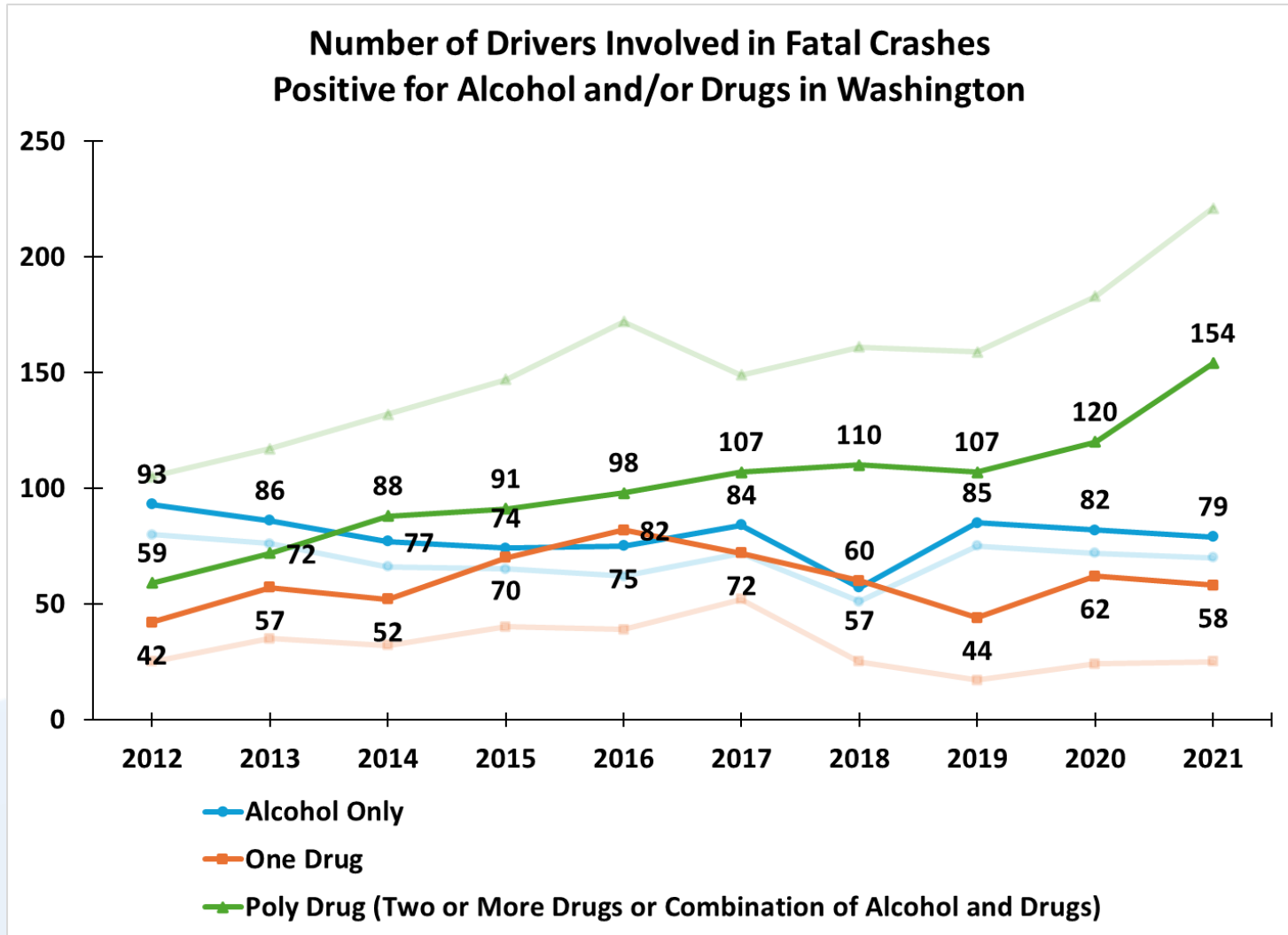
Total Number of Drivers Involved in Fatal Crashes Positive for Drugs (excluding alcohol) in Washington, 2012-2021



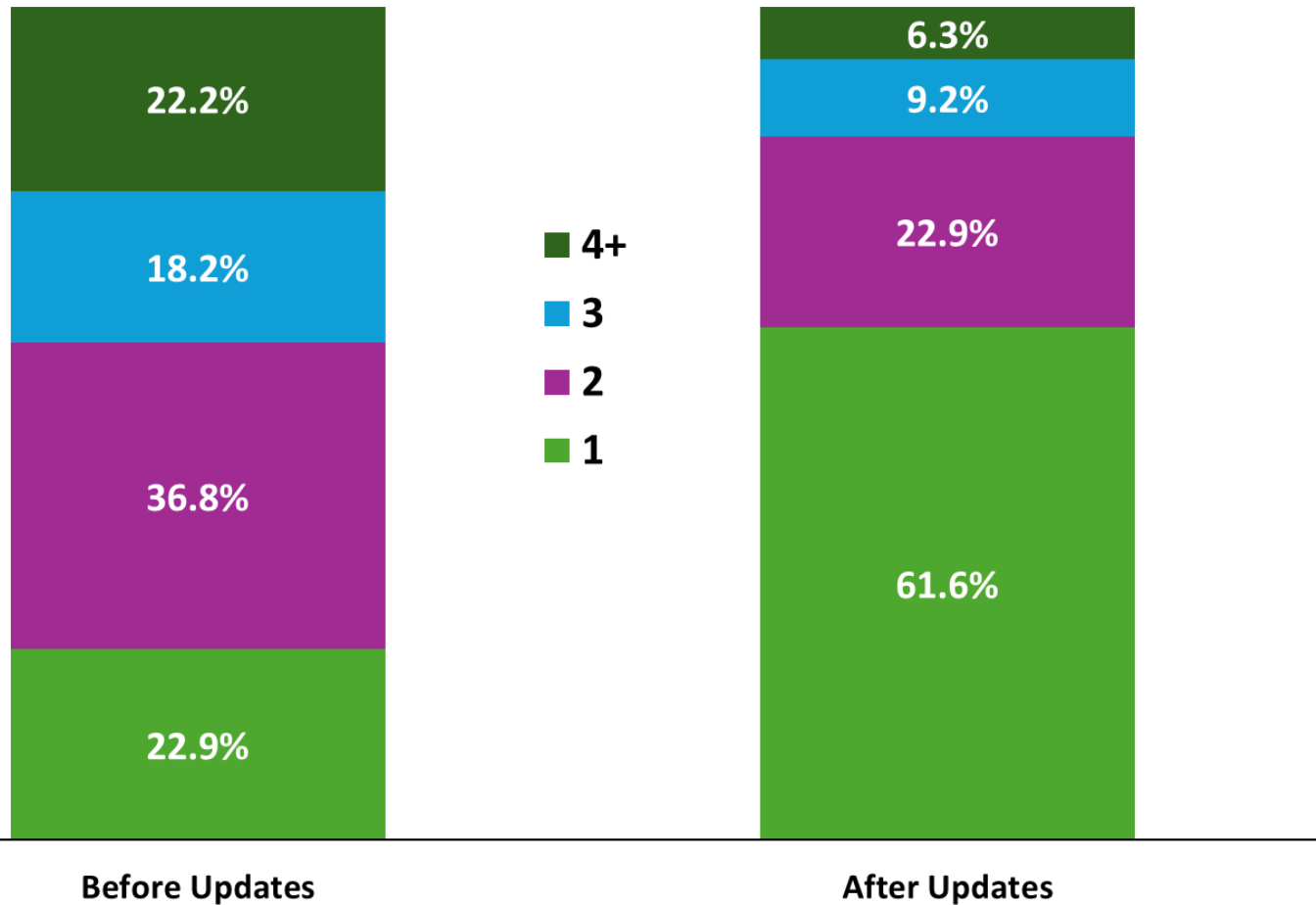
BEFORE UPDATES



AFTER UPDATES



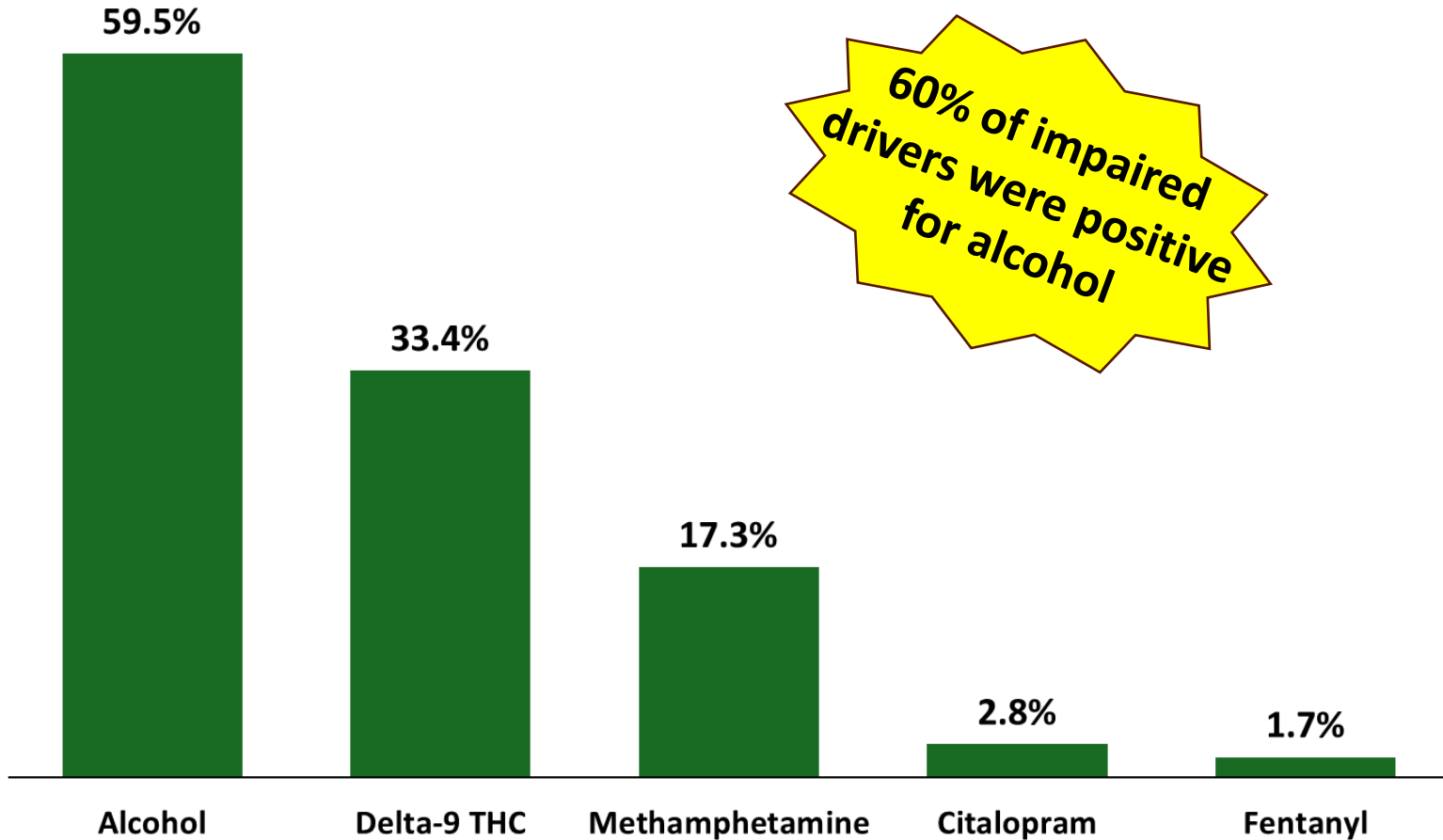
Number of Drugs Present among Drug-Positive (excluding alcohol) Drivers Involved in Fatal Crashes in Washington, 2012-2021



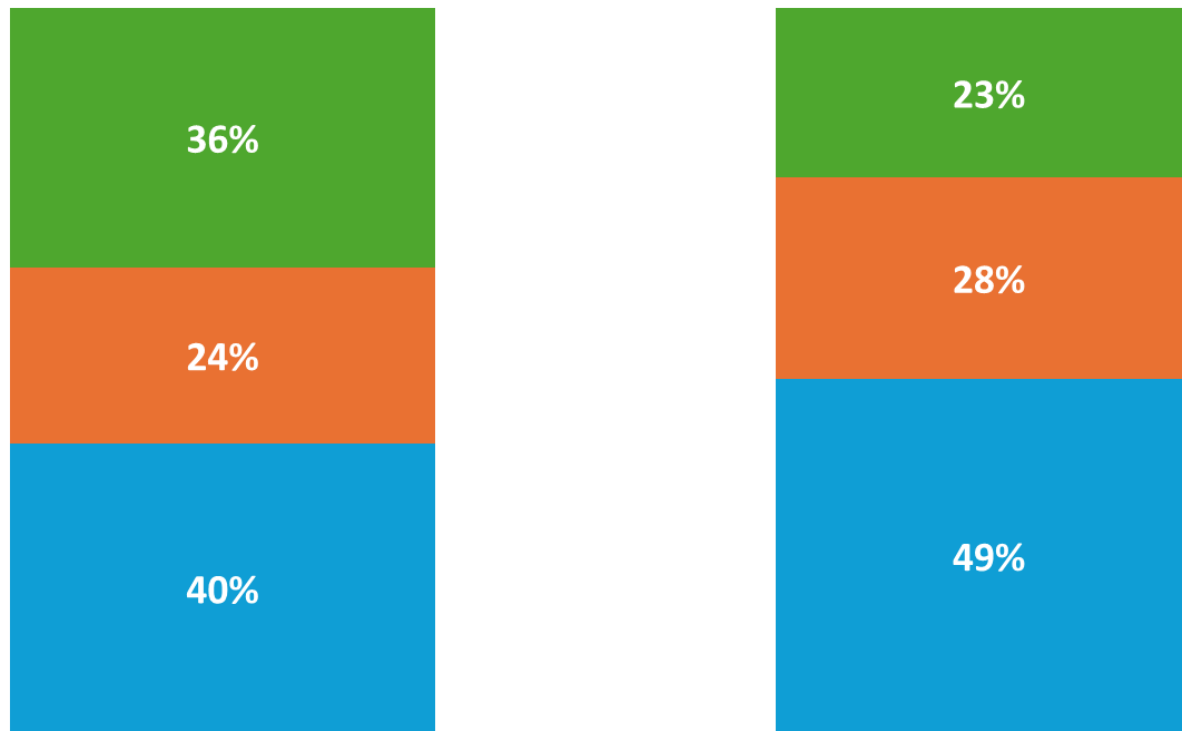
Most Frequent Drug and Alcohol Combinations among Impaired Drivers Involved in Fatal Crashes in Washington, 2012-2021

<i>Toxicology Results</i>	<i>Count</i>	<i>Percent</i>
alcohol	793	33.1%
alcohol & delta-9 thc/carboxy-thc	243	10.1%
delta-9 thc/carboxy-thc	184	7.7%
methamphetamine/amphetamine	125	5.2%
alcohol & delta-9 thc/carboxy-thc/11-hydroxy thc	39	1.6%
methamphetamine	36	1.5%
alcohol & delta-9 thc	35	1.5%
alcohol & methamphetamine/amphetamine	31	1.3%
delta-9 thc/carboxy-thc & methamphetamine/amphetamine	26	1.1%
delta-9 thc/carboxy-thc/11-hydroxy thc	22	0.9%
delta-9 thc	16	0.7%
alcohol & citalopram	15	0.6%
citalopram	15	0.6%
methamphetamine/amphetamine & morphine	15	0.6%
morphine	14	0.6%
alcohol & delta-9 thc/carboxy-thc & methamphetamine/amphetamine	11	0.5%
delta-9 thc/carboxy-thc & methamphetamine	11	0.5%
diphenhydramine	11	0.5%
alcohol & methamphetamine	10	0.4%
fluoxetine/norfluoxetine	10	0.4%

Prevalence of Alcohol and Select Drugs among Impaired Drivers Involved in Fatal Crashes in Washington, 2012-2021



Impaired Drivers Involved in Fatal Crashes by Sex and Impairment Type in Washington, 2012-2021

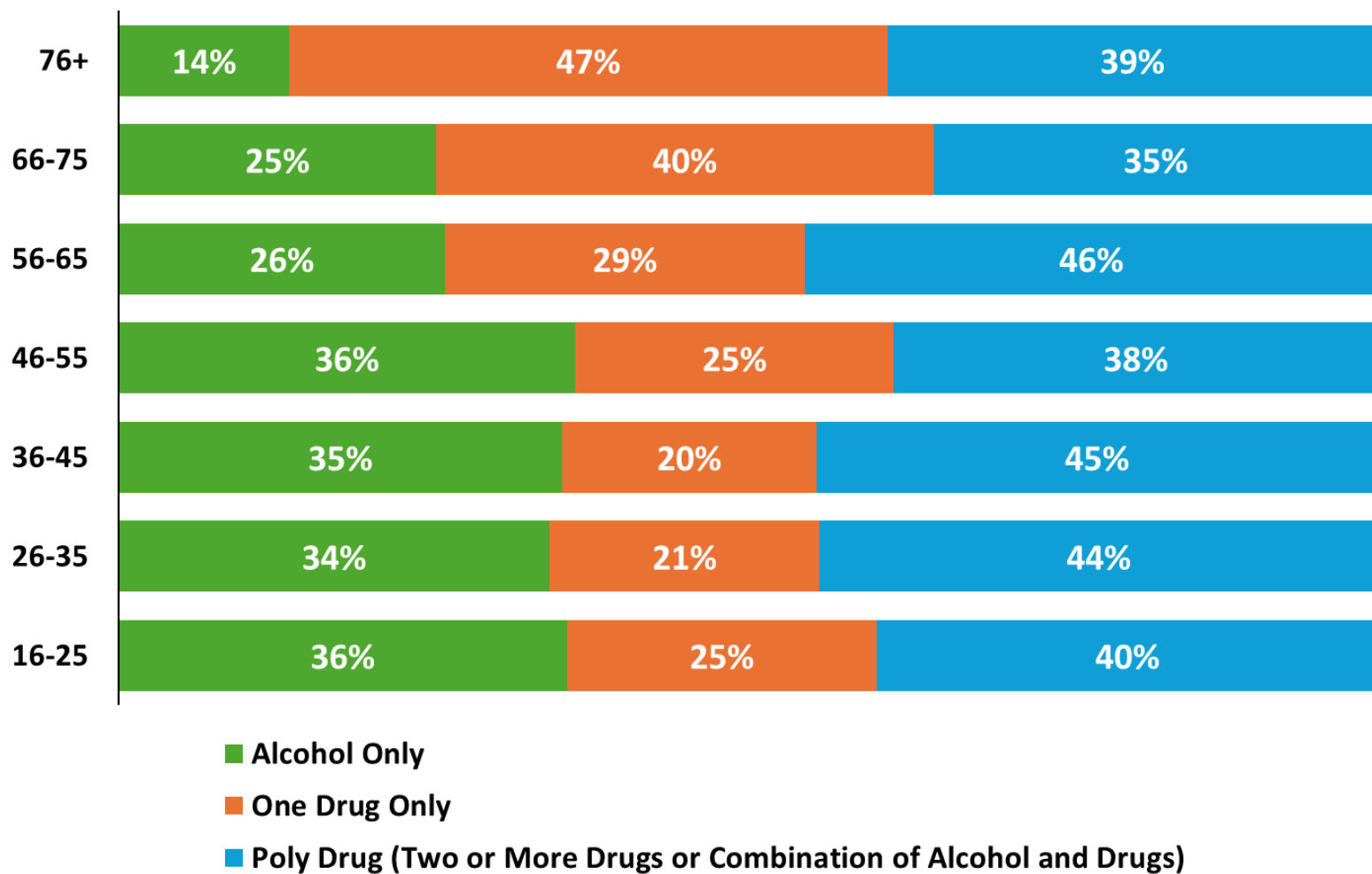


Male (n=1,876)

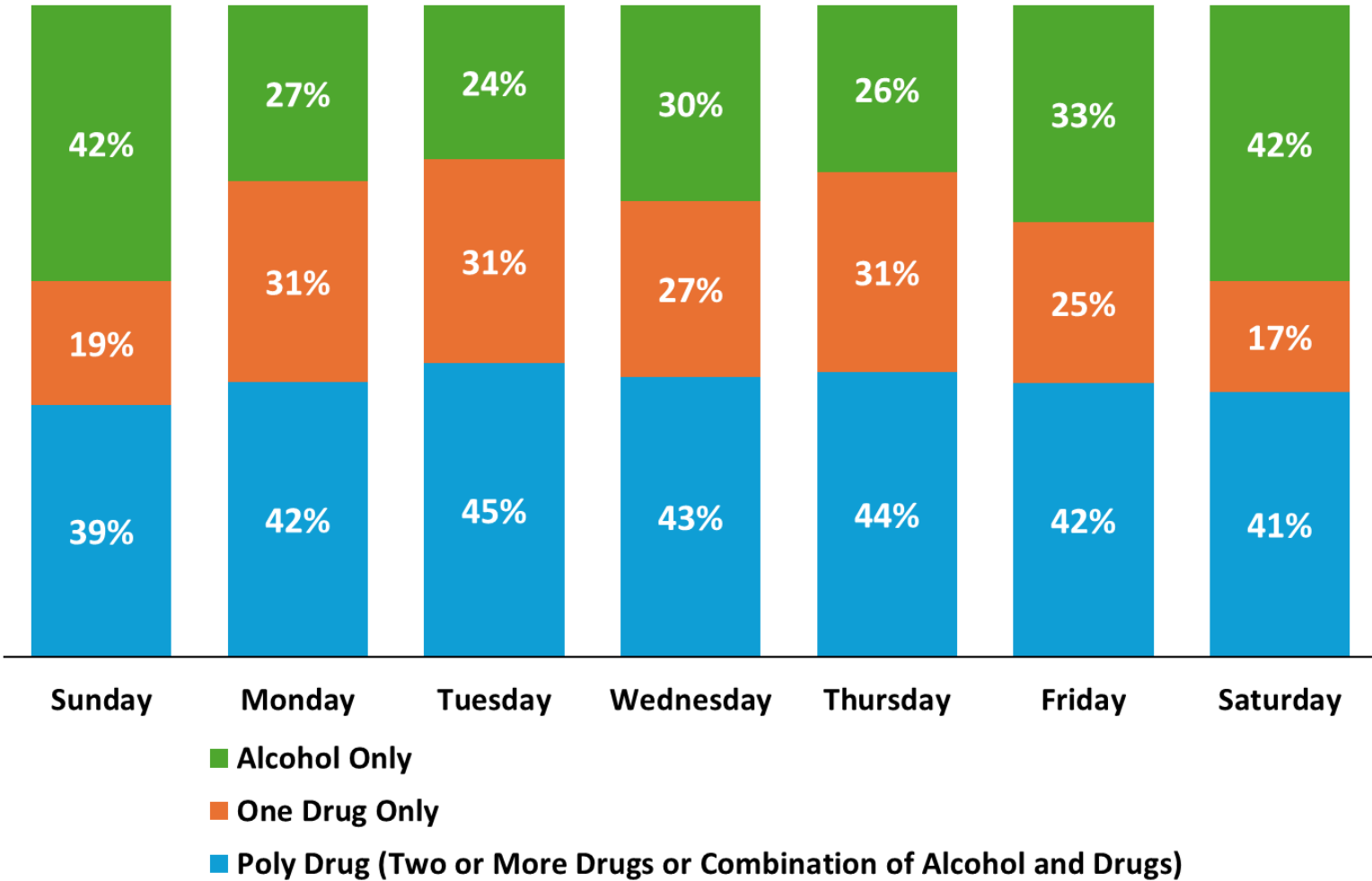
Female (n=501)

- Alcohol Only
- One Drug Only
- Poly Drug (Two or More Drugs or Combination of Alcohol and Drugs)

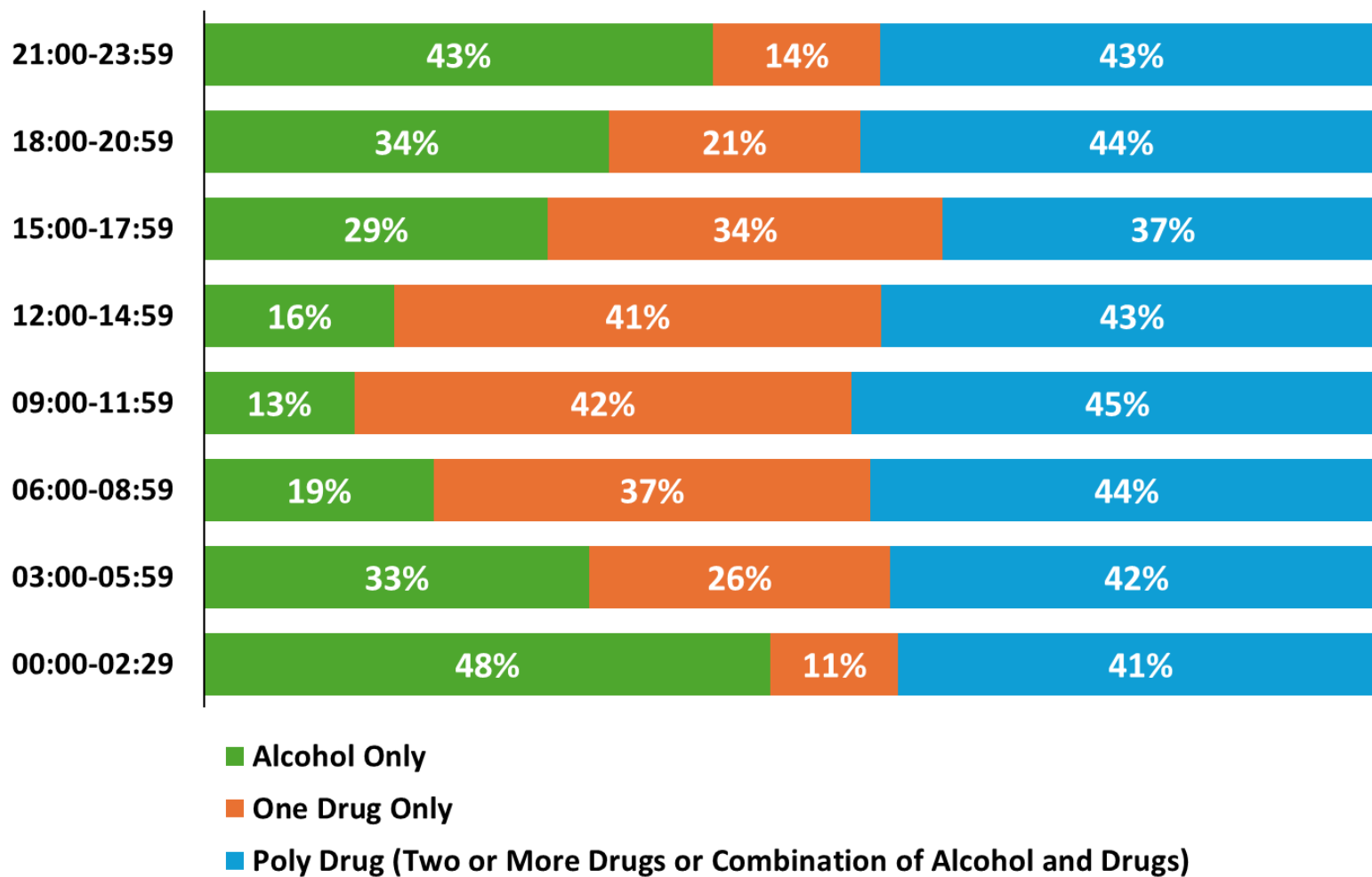
Impaired Drivers Involved in Fatal Crashes by Age and Impairment Type in Washington, 2012-2021



Impaired Drivers Involved in Fatal Crashes by Day of Week and Impairment Type in Washington, 2012-2021

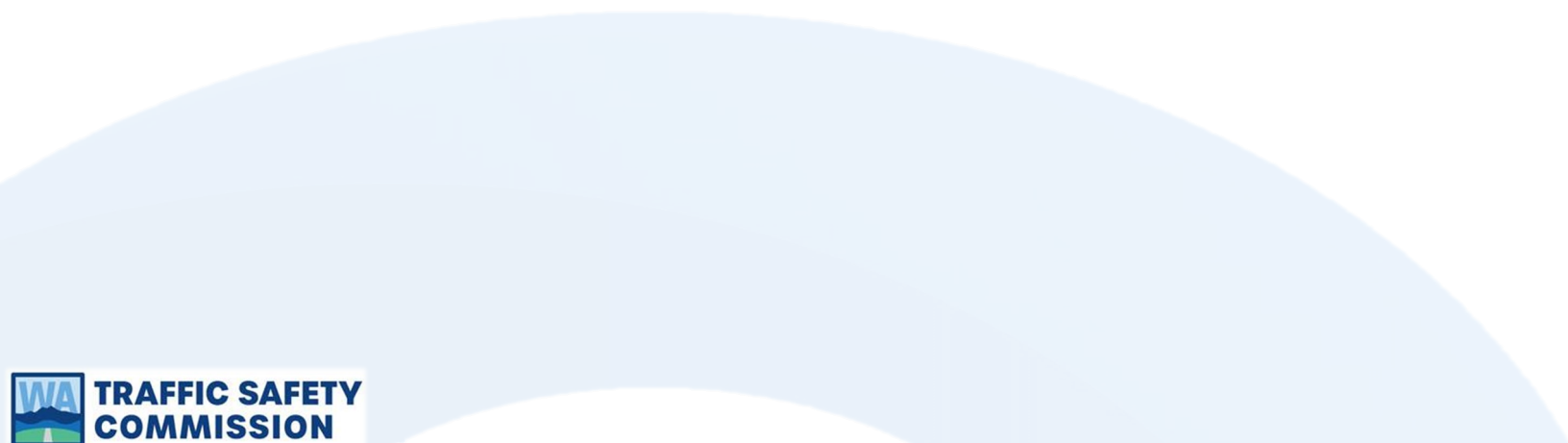


Impaired Drivers Involved in Fatal Crashes by Time of Day and Impairment Type in Washington, 2012-2021



LIMITATIONS & FUTURE WORK

- Length of time from crash to blood draw
- Data linkage with EMS and hospitals
- Introduction of new drugs (illicit or pharmaceutical)
- Ongoing research to understand impairing effects of drugs on driving



Drug-Positive Driver Data Update (Brief)



https://wtsc.wa.gov/wp-content/uploads/dlm_uploads/2023/11/15_Drug-Data-Update_Oct-2023.pdf

Re-Evaluating the Prevalence of Drugged and Poly-Drug Driving in Washington State (Full Report)



https://wtsc.wa.gov/wp-content/uploads/dlm_uploads/2024/01/Poly-Drug-Report-2023_FINAL.pdf

Thank You

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