

Impairment on our roads

Janice Williams , MSED Director Carolinas Center for Injury Prevention
Janice.williams@atriumhealth.org or 704-208-6428

Today's goal and considerations

Goal:

Present our project data on Road crashes and Substance use to increase the visibility of needed work in this area for safer roads.

Things to keep in mind:

- Data source – Crash report, urine, breath, self reporting
- Presence of substance vs impairment
- Addiction versus use
- DSM 5 treatment qualifications vs SBIRT services
- Social worker services vs harm reduction planning
- Court entry vs community
- Trauma Center patient vs ED vs primary

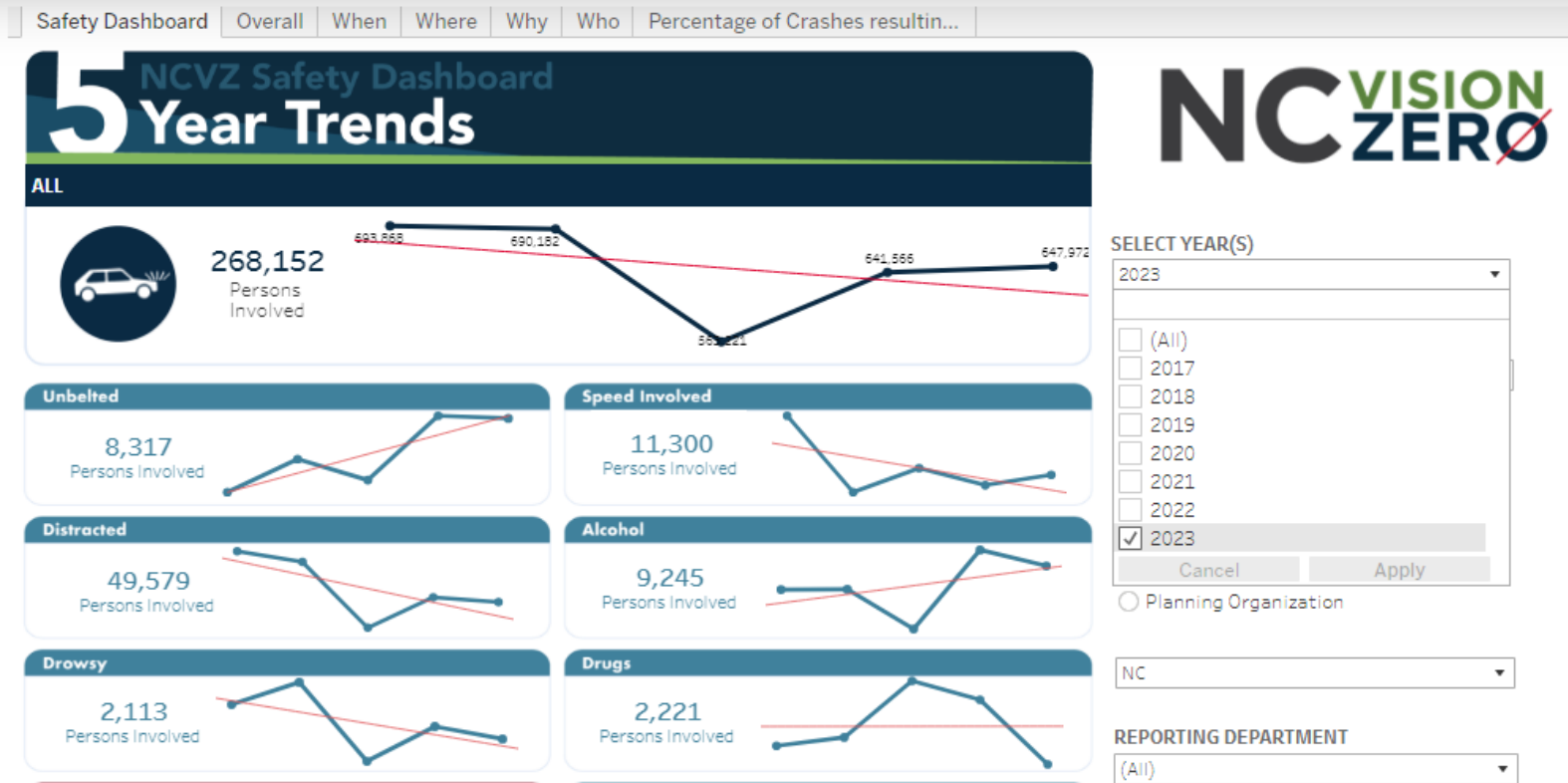


DATA

- Data – NCOEMS (EMS- Nemesis)
- NC DETECT *10% SUD own vehicle our study
- Fatal- ME, NCDHHS Mortality
- Child Fatality teams
- Court data
- Alcohol data ABC, NCALE, Alcohol DHHS, BHHS surveys
- DMV medical teams, NC Vision Zero, Crash reports

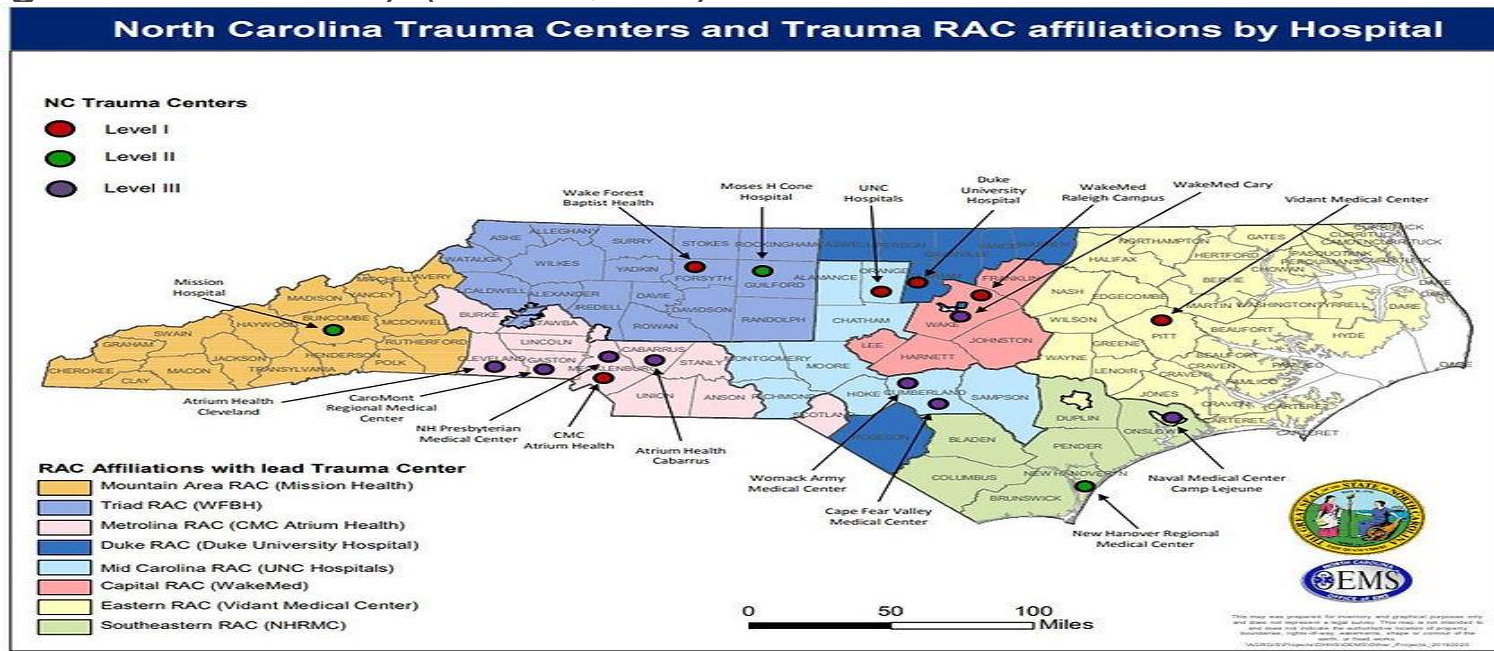
- Healthcare caveats- medical care codes vs injury code, billing, provider notes, discrete fields, data needs for care vs cost, residents/staff turnover.

DMV data – 11,500 SUD of 128,152 crashes (9%)



Trauma data

- If a crash comes in with severe injury, they are coded a trauma 1,2, or 3 and get more advanced care- inpatients that enter needing surgical care. Modes- transfer, helicopter, car, EMS, (vision zero priorities and regionalized care) (Meck, SC)



Protocol – NHTSA study –

- Main points- Not self reported, most likely mirrors all areas – small changes such as Winston-Salem seems to have more drug.

Protocol

- Severely injured road victims present
- Tube of blood draw added to all blood pulled from victim given an ID and logged into a research system.
- Blood sent every three days to external lab for full blood panel of substances.
- ME office visited weekly for tubes to add.
- Same ID in system has entry of medical variables and DMV report variables for match. But no one funded control comparison.
- https://www.nhtsa.gov/sites/nhtsa.gov/files/2022-12/Alcohol-Drug-Prevalence-Among-Road-Users-Report_112922-tag.pdf



NHTSA funded study 2019-2021- CLT outcomes

Drug Category	Driver (N=1,178)			Passenger (N=258)			Bicyclist (N=46)			Pedestrian (N=194)			All Other (N=34)		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
Alcohol	290	24.6	[22.2, 27.1]	40	15.5	[11.5, 20.3]	7	15.2	[7.1, 27.6]	50	25.8	[20.0, 32.3]	12	35.3	[20.9, 52.0]
Cannabinoids	277	23.5	[21.2, 26.0]	74	28.7	[23.4, 34.4]	6	13.0	[5.6, 24.9]	53	27.3	[21.4, 33.9]	5	14.7	[5.8, 29.3]
Stimulants	134	11.4	[9.7, 13.3]	28	10.9	[7.5, 15.1]	4	8.7	[3.0, 19.4]	29	14.9	[10.5, 20.5]	5	14.7	[5.8, 29.3]
Sedatives	106	9.0	[7.5, 10.7]	21	8.1	[5.3, 11.9]	1	2.2	[0.2, 9.7]	8	4.1	[2.0, 7.6]	3	8.8	[2.5, 21.7]
Opioids	81	6.9	[5.5, 8.4]	21	8.1	[5.3, 11.9]	2	4.3	[0.9, 13.2]	10	5.2	[2.7, 9.0]	0	0.0	[0.0, 0.0]
Antidepressants	20	1.7	[1.1, 2.6]	0	0.0	[0.0, 0.0]	1	2.2	[0.2, 9.7]	2	1.0	[0.2, 3.3]	1	2.9	[0.3, 12.9]
Over-the-Counter	18	1.5	[0.9, 2.4]	8	3.1	[1.5, 5.8]	1	2.2	[0.2, 9.7]	4	2.1	[0.7, 4.8]	0	0.0	[0.0, 0.0]
Other Drugs	19	1.6	[1.0, 2.5]	3	1.2	[0.3, 3.1]	0	0.0	[0.0, 0.0]	6	3.1	[1.3, 6.3]	0	0.0	[0.0, 0.0]
Positive for Any Drug	651	55.3	[52.4, 58.1]	131	50.8	[44.7, 56.8]	14	30.4	[18.6, 44.6]	107	55.2	[48.1, 62.0]	21	61.8	[45.0, 76.6]
Drug Negative	527	44.7	[41.9, 47.6]	127	49.2	[43.2, 55.3]	32	69.6	[55.4, 81.4]	87	44.8	[38.0, 51.9]	13	38.2	[23.4, 55.0]
Positive for Multiple Drug Categories	230	19.5	[17.3, 21.9]	51	19.8	[15.3, 24.9]	7	15.2	[7.1, 27.6]	41	21.1	[15.8, 27.3]	4	11.8	[4.1, 25.6]

Some key variables

- **THC-** 80.0% of the trauma center driver cases and 86.4% of the ME driver cases had an active THC concentration at or above 2 ng/mL. Of the trauma center driver cases, 50.1% had a concentration at or above 5 ng/mL.
- **Alcohol-** BAC positive 83.4% over .08 (many over .15)
- **Sex-** Male 57% Female 47% (more OTC, anti depressants, ...)

Timing-

- Day alcohol 10.3 Night alcohol 35.7 (6pm-6am). (trauma data can detect this, about equal in the time periods 5-8pm,9-12pm and 12-6am)
- Day THC 21.3 Night 29.6
- Weekday vs weekend almost exactly the same percentages

Current Trauma data

- January 1- September 2nd 2024 CMC Main - 2,450 MVC's
- 377 screen positive substance presence 384 negative screen (50% still) Trauma three sites near us for “ rural” have a very low testing rate so its hard to make assumptions.
- About 20% of these patients come from the adjoining counties for severe injury care.
- Equity- 28% AA in the dataset, 60 percent tested positive, while white 60% with 50 % positive testing.
- Regulatory requirements for trauma care exist under the college of surgeon's national body. [National Trauma Data Bank® \(NTDB®\) | ACS \(facs.org\)](#) and NC [Trauma Education, Registry and Research – NCOEMS](#)

T-SBIRT

- SBIRT- screening (verbal efficacy?) , brief intervention, (what counseled on) and referral to treatment (predisposes need)
- Traditional VS ours
- Pedestrian/video game case story

prime for life.™

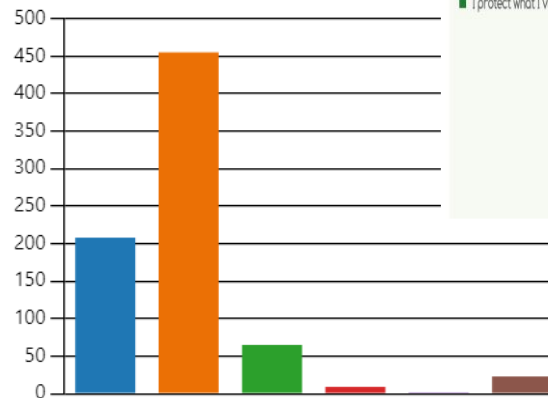
phases of use



- Take it or leave it
- No changes in how much I use
- I protect what I value
- I Look forward to it
- I use more now
- I do some skills better when using
- Occasional problems and can be life changing
- It's on my mind a lot
- I can use even more
- I feel like my use brings out the best in me
- Problems become more common
- I might feel like I have to use it
- My ability to handle it might change
- It's hard to imagine life without it
- Problems in life might seem overwhelming

762 seen patient demographics

Black	208
White	455
Hispanic	65
Asian	9
Middle-Eastern	2
Other	23










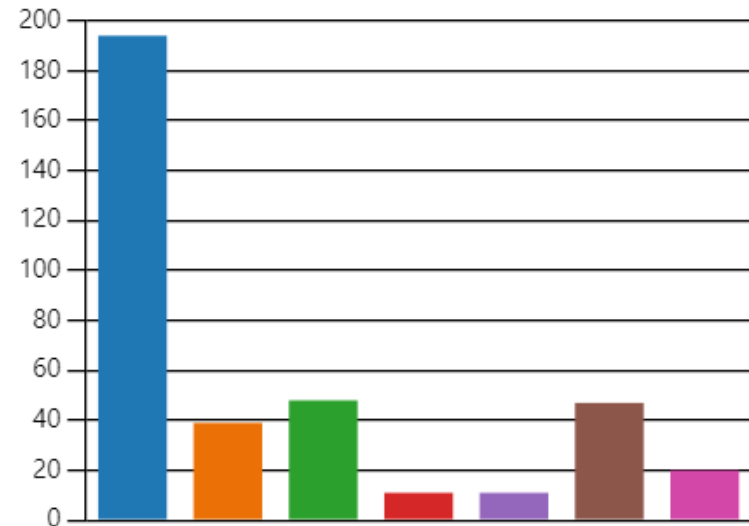
Incident type

38. Incident Type*

[More Details](#)

 Insights

 MVC - Vehicle(s) Only	194
 MVC - Pole, Tree, Etc.	39
 MCC Motorcycle	48
 Moped/Scooter	11
 Bicycle	11
 Pedestrian Struck	47
 ATV, Mower, Other Non-Highwa...	20

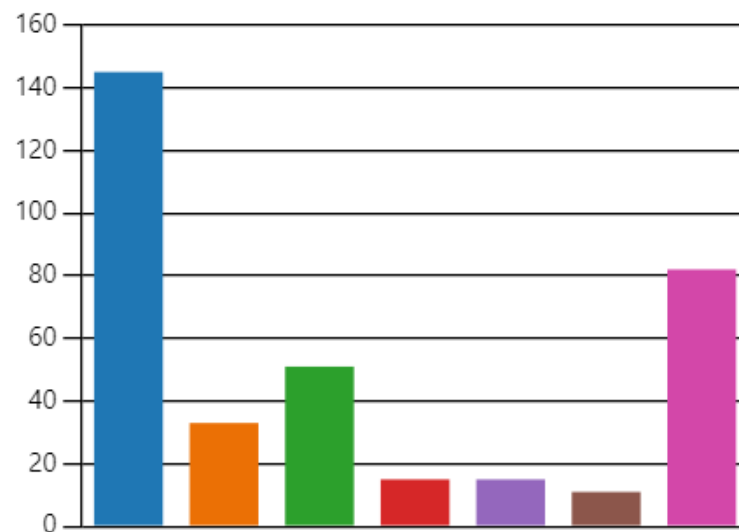


Protective devices pretty well used

40. Safety measures at time of incident/injury*

[More Details](#)

● Seatbelt Worn	145
● NO Seatbelt Worn	33
● Helmet Worn	51
● NO Helmet Worn	15
● Pedestrian Lawfully Crossing or I...	15
● Pedestrian Unlawfully Crossing ...	11
● Unknown/Not Collected	82



Demographics SBIRT seen

7. Patient Gender

[More Details](#)

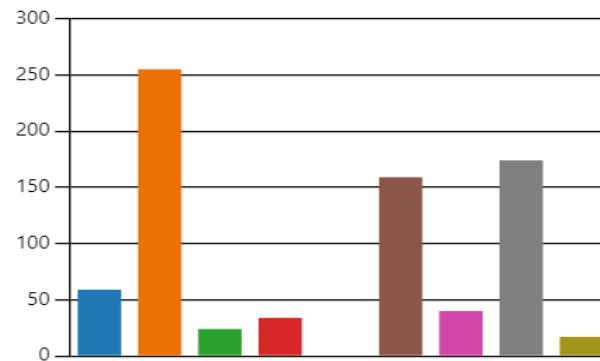
● Male	488
● Female	274
● Other	0



8. What was the patient's recorded employment status at time of injury visit?

[More Details](#)

● Unknown - No Record/Pt Declin...	59
● Employed Full-Time (Receives F...	255
● Employed Part-Time (Receives P...	24
● Self-Employed (Income Varies)	34
● Homemaker (Relies on Family In...	0
● Retired (Retirement/Fixed Incom...	159
● Disabled (Receives Disability)	40
● Not Employed (No Income)	174
● Other	17



Recidivism

- 65 of the 762 had an obvious similar medical visit due to injury or SUD in past year

14. Do the injury/acute visits appear to have commonalities (within SBIRT scope-of-practice)?

[More Details](#)

● No, Injuries Appear Unrelated	14
● Yes, Same/Similar Injury Type	42
● Yes, tested positive for AOD upo...	18

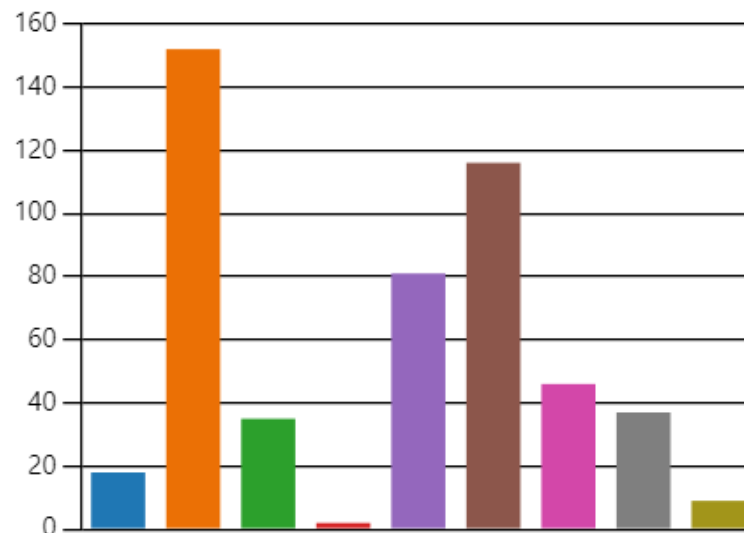


Urinalysis, alcohol and THC

18. Please check all substances patient tested positive for AT ADMISSION:

[More Details](#)

● N/A - No Tox/Lab In Chart	18
● Alcohol	152
● Amphetamines/Methamphetam...	35
● Barbituates	2
● Benzodiazepines	81
● Cannabinoids (THC, CBD, Delta-8)	116
● Cocaine	46
● Opiates	37
● Other	9

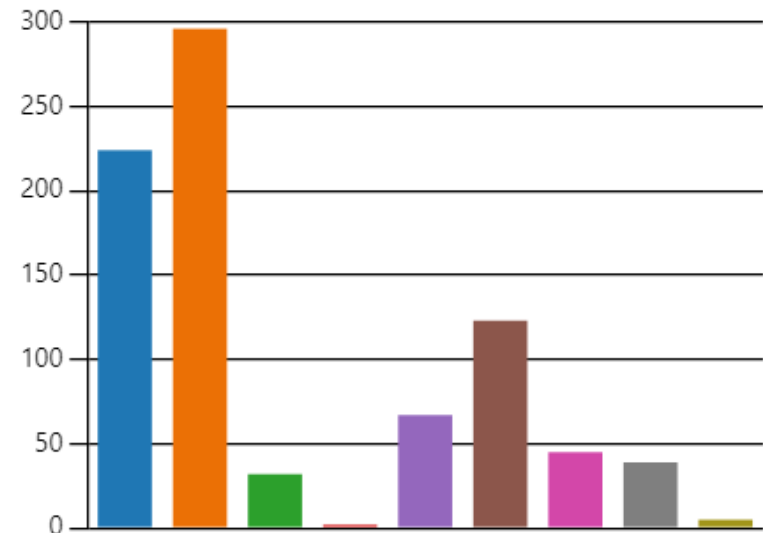


Substances “ added” to screen via verbal almost double alcohol.

23. Please check all substances patient tested positive for AT ADMISSION AND admitting to using during SBIRT visit:

[More Details](#)

None or N/A	224
Alcohol	296
Amphetamines/Methamphetam...	32
Barbituates	2
Benzodiazepines	67
Cannabinoids (THC, CBD, Delta-8)	123
Cocaine	45
Opiates	39
Other	5

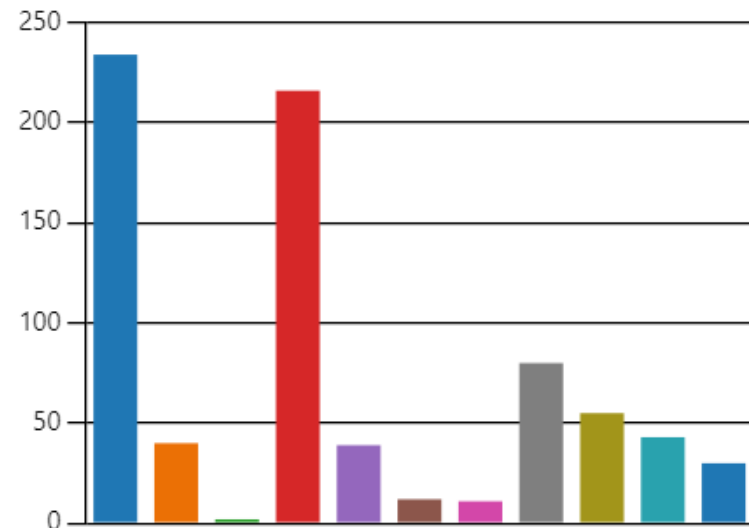


Reason use - FUN

24. Primary reason(s) for use reported by patient*:

[More Details](#)

● N/A: Denies AOD Use	234
● Prescribed - Taking As Prescribed	40
● Prescribed - Not Taking As Presc...	2
● Fun/Entertainment	216
● Social Pressure	39
● Pain Management	12
● Energy/Performance	11
● Stress Relief	80
● Emotional Coping (Depression/...	55
● Dependence/Addiction	43
● Other	30





“treatment” and addiction risk lower”

25. Potential risk of current or developing SUD per SBIRT screening:

[More Details](#)

 Insights

 Low-Mild Risk	461
 Moderate-High Risk	147

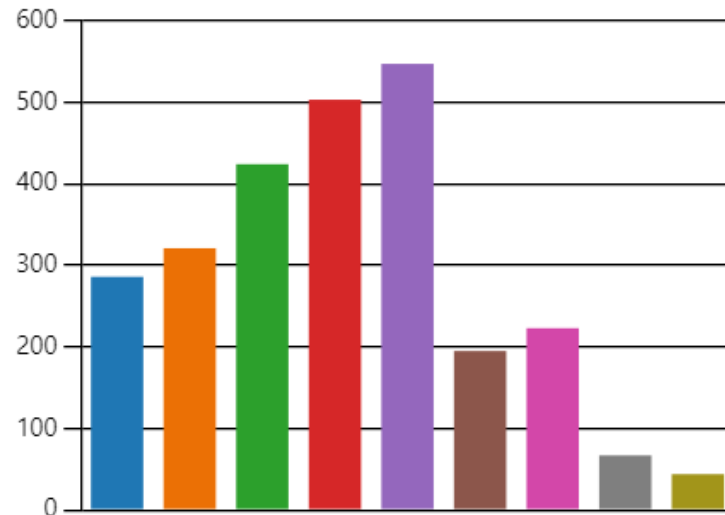


Social supports , coping, MVC info, (not even MI which is the crux of SBIRT traditionally)

28. What GENERAL INTERVENTIONS were provided during visit with patient?

[More Details](#)

● Psychoeducation: Increased risk ...	286
● Psychoeducation: Proper use or ...	321
● Coping Mechanism Inventory &...	424
● Identified Social Support & Co...	503
● Individualized Injury Prevention/...	547
● Motivational Interviewing (Cow/...	195
● Harm Reduction Planning (If pt i...	223
● Explored Ambivalence (Behavior...	67
● Other	44

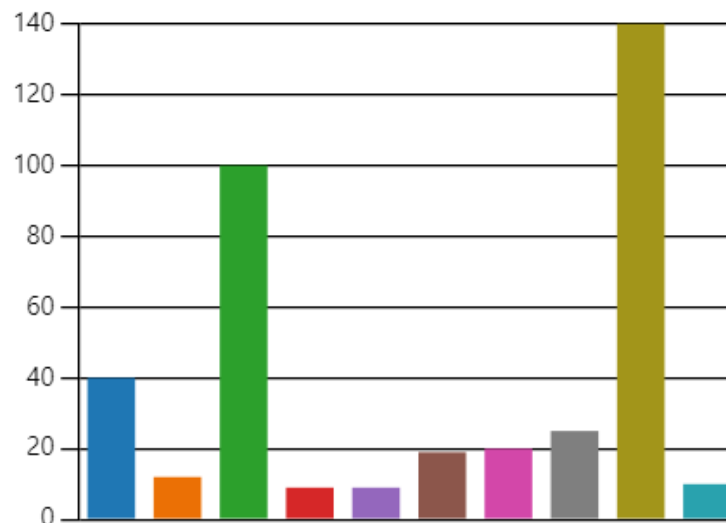


Harm planning

32. What SUD-SPECIFIC INTERVENTIONS were provided during this patient visit?

[More Details](#)

● Actively engaged in various typ...	40
● Facilitated patient-generated "Ti...	12
● Stages of Change (Transtheoreti...	100
● Reviewed SUD criteria (as listed ...	9
● 5 Stages of Relapse	9
● Relapse-Prevention Plan (includi...	19
● Connected patient to bedside C...	20
● Intro to CBT Triangle (CBT; Dr. A...	25
● Discussed Harm Reduction Met...	140
● Other	10

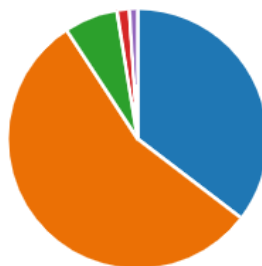


Stages of change- really need a follow up

31. What Stage of Change did patient appear to be in upon start of visit?

[More Details](#)

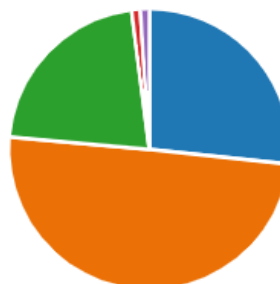
- Pre-Contemplation (Denial or U... 69
- Contemplation (Recognizes/Con... 108
- Preparation (Planning & Prepari... 13
- Action (Implementing & Modify... 3
- Maintenance (Sustaining & Prev... 2



33. What Stage of Change did patient appear to be in at the conclusion of this visit?

[More Details](#)

- Pre-Contemplation (Denial or U... 52
- Contemplation (Recognizes/Con... 97
- Preparation (Planning & Prepari... 42
- Action (Implementing & Modify... 2
- Maintenance (Sustaining & Prev... 2



Not addiction, support , not reimbursable.

34. Was a referral provided at this visit?

[More Details](#)

[Insights](#)

● No, no referral needed.	552
● Yes, referral(s) provided.	102
● Other	90



35. What type(s) of referrals were provided?

[More Details](#)

● Referral for SUD Assessment/Tre...	86
● Referral to Community Support ...	86
● Referral to other community res...	25
● Referral to internal addiction me...	11
● Referral to internal programs (S...	9



Atrium Health

Harm planning intended commitment

43. What TYPE of action item(s) did patient commit to?*

[More Details](#)

● General Traffic Safety (Limit distr...	243
● Use of Vehicle Safety Measures (...	252
● Harm Reduction Methods	140
● Accepted SUD-Related Referrals	30
● Other	12



Other another UNCC study

- FARS data alcohol fatalities five years what linked to higher alcohol fatalities. (nationwide)

Risk factors for increased-

- Higher fatal alcohol related crashes in communities of older adults, teenagers, rural and low primary care supply.
- Older adult/rural – Might be tied together. In general older adults have more fatal outcomes (fragility). Alcohol is increasing in older adults. (40% falls, when mention people believe “ medicines” study coming up UNCC).
- Everyone- isolation, road (trees, narrow, response). One additional finding, 10 minutes more time to fatal outcome if not using substances.
- Teenagers- isolation, fun, road,

Protective factors

- High school education and beyond, either better opportunity (but this can't be true of rural), better decision making skills.
- Primary Care access is more likely “ chronic” and pain diseases intervention are addressed so less pain and stress and life stressors and so turn to substances

Road changes and Safe System (similar to speed and light) Engineering

- Reflective paint seen better when impaired.
- Shorter blocks- can build up speed
- Less curves (forgiving road), remove trees and run into things in high frequency areas.
- Rural areas- lighting and frequent road sweeps
- Grass strip road sidewalk (pedestrians)
- Lights on road, driver avoid ped or bike
- Control measures for on and off wrong direction access (random design of which side of road enter/stop arms or light)



Other suggested changes

- Lower BAC to .05 and criminalize- impairment happens at a lower level
- Utah- increased their transit system options, express buses, free rides , frequency before lowering BAC. Phoenix and Washington DC (DUI arrests dropped more than 15% per additional hour of transit service, and fatal crashes fell [a whopping 70%.](#))
- Increase sales tax on alcohol
- DWI courts not in every county right now , with 24/7 add in (but not all, these patients don't get adjudicated on)
- DMV short form route fix,
- Public intoxication not illegal , sobriety centers
- NC allows social districts, distilleries allowed to sell, and is considering allowing each county to make their own access laws (happy hour, Sundays), medical marijuana

More ideas

- “education” and campaigns alcohol and THC, how to avoid driving (less booze it and lose it), reframe “fun”.
- Place of last drink
- Support hospital SBIRTS (not PCP), support lower level interventions , social constructs
- ABC stores- reduce hours at night? , placement- low income not that they might have more demand, cost to operate lower in areas.
- Treatment access (MAT – ID’s)
- Ignition interlocks and of course the in vehicle when available
- Redesign outreach on traffic issues to engage new community partners. “ violence”, “ ACE”
- Alcohol exclusion and Marijuana exclusion laws and biases of recording info
- Work with SUD people to harm plan instead of just SUD