



Harris County Institute of Forensic Sciences **2019 ANNUAL REPORT**





The MISSION of the Harris County Institute of Forensic Sciences is to provide medical examiner and crime laboratory services of the highest quality in an unbiased manner with uncompromised integrity.

Accreditations

Accreditation Council for Graduate Medical Education

American Board of Forensic Toxicology

**ANSI National Accreditation Board
ISO/IEC 17025 Program (Crime Laboratory)**

**ANSI National Accreditation Board
ISO/IEC 17020 Program (Forensic Anthropology)**

**Lloyd's Register Quality Assurance
ISO 9001:2015 Program (Quality Management)**

National Association of Medical Examiners

Texas Forensic Science Commission

**Texas Medical Association for
Continuing Medical Education**

Medical Examiner Service

Has the statutory duty to determine cause and manner of death



Texas Medical Examiner Jurisdiction

1. When a person dies within **twenty-four hours** after admission to a hospital
2. When any person is **killed**;
3. When the body or a body part of a person is **found**
4. When the circumstances of the death of any person are such as to lead to suspicion that he came to his death by **unlawful means**;
5. When any person commits **suicide**
6. When a person dies **without** having been attended by a duly licensed and **practicing physician**
7. When the person is a child who is younger than **six years** of age
8. When a person dies who has been attended immediately preceding his death by a duly licensed and practicing physician or physicians, and such physician or physicians are not certain as to the cause of death and are **unable to certify** with certainty the cause of death



Statistical Summary

- **Harris County (HC) remains the **third most populous county** in the nation, exceeded only by Los Angeles and Cook counties**
 - **4.7+ million** estimated HC population in 2019*
 - **29,877** HC death certificates filed in 2019**
 - **36%** (10,677) of HC deaths reported to HCIFS in 2019
 - **4,583** medicolegal (ML) cases received by HCIFS for examination
 - **5,681** inquest only cases reported
 - **413** trauma inquest cases reported
 - **2,761** scenes attended by Forensic Investigators
- **5,028 deaths were certified in 2019, including:**
 - **4,583** Harris County ML cases (all brought to HCIFS for examination)
 - **413** trauma inquests
 - **32** out-of-county cases



Statistical Summary

- **88%** of ML cases (**4,027**) received a full autopsy*
 - **12%** of ML cases (**556**) received an external examination only
- **281** decedents unidentified on arrival
 - **10** decedents remained unidentified at the end of 2019**
- **269** referrals to Harris County Bereavement Services
- **194** formal neuropathological consults and **325** unofficial consults***
 - **17** child abuse consults
- **No hospital autopsies retained**

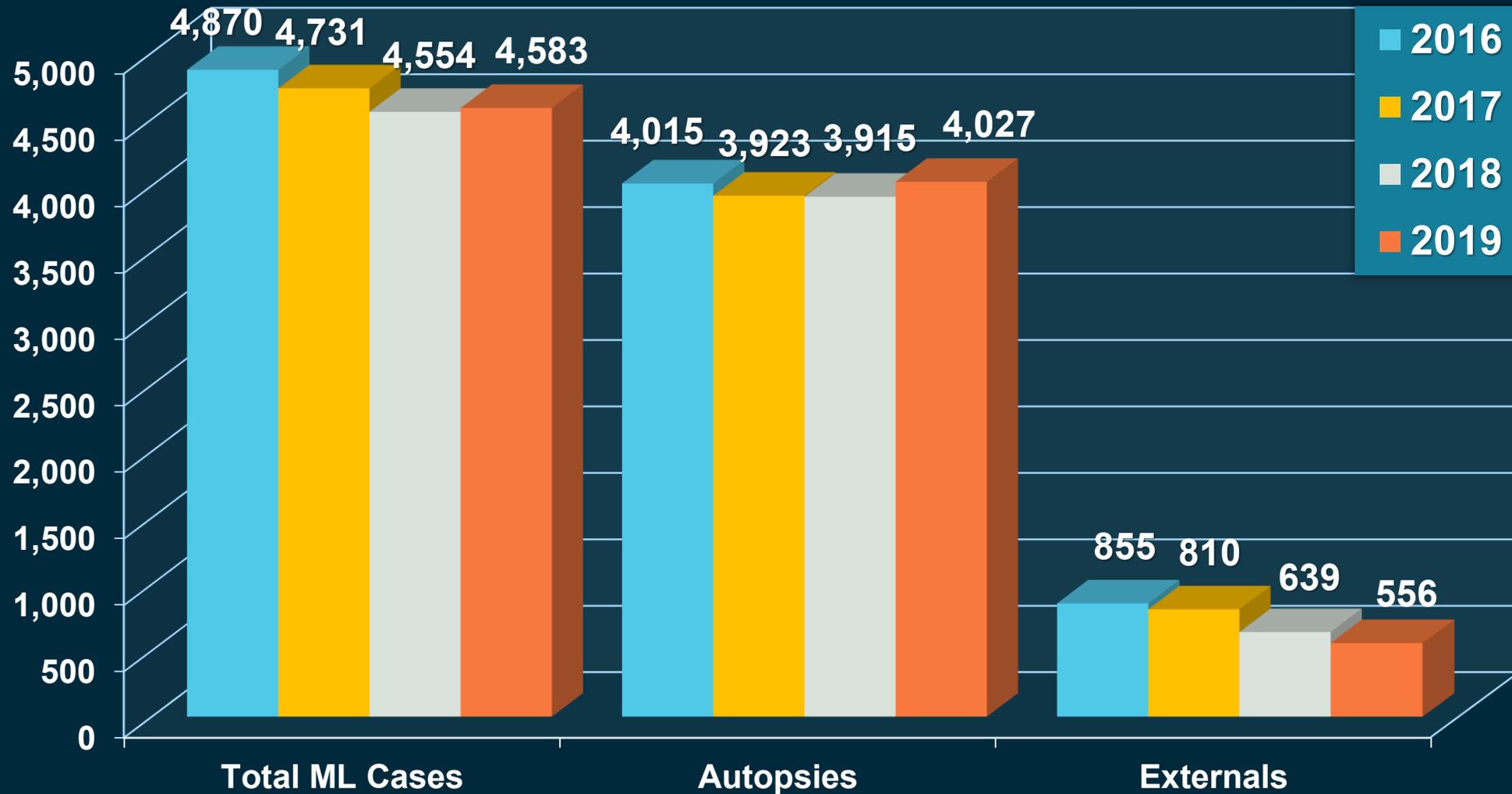


* *Partial autopsies are not performed by the HCIFS*

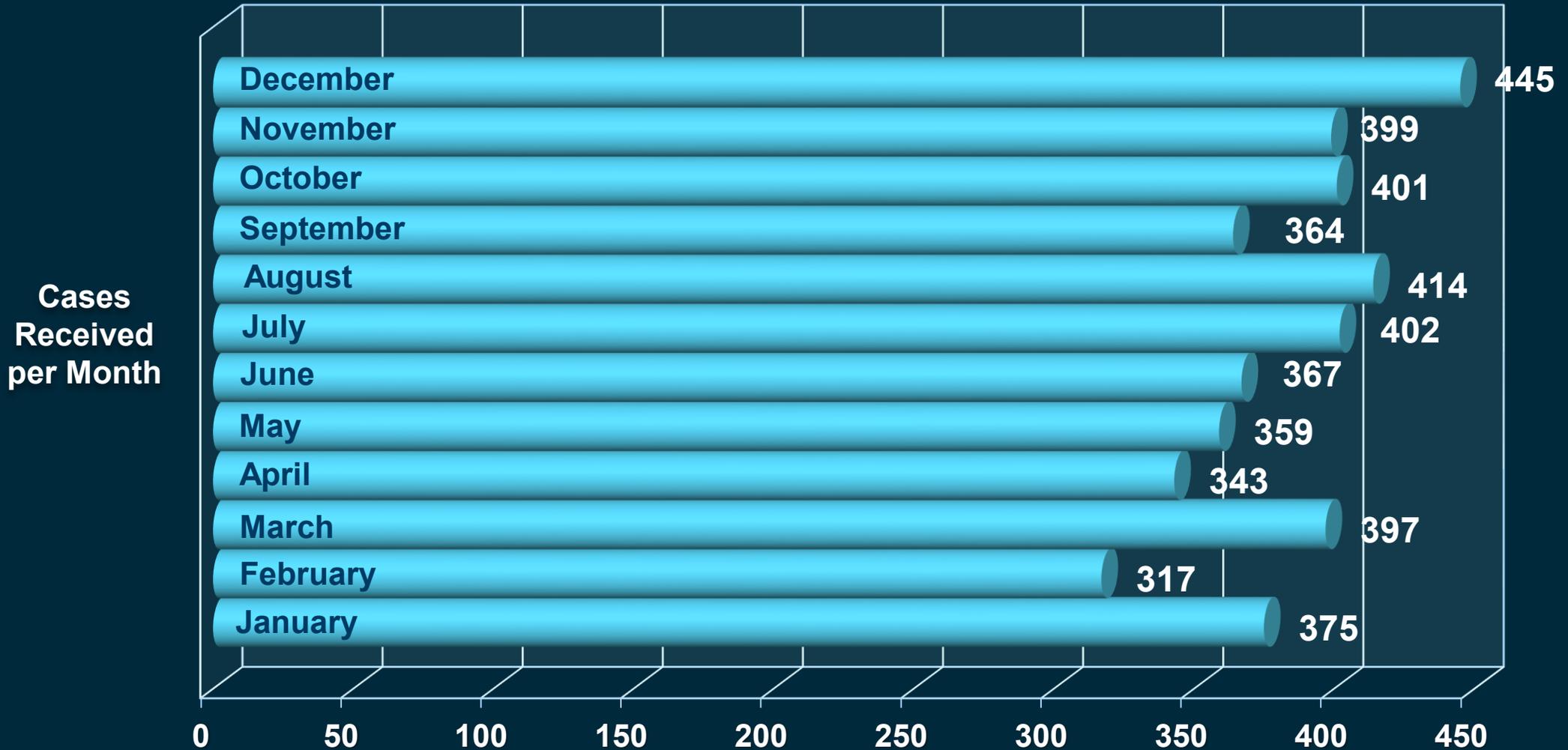
** *6 skeletal remains, 2 fetal remains and 2 in an advanced state of decomposition*

*** *Unofficial consults include gross, photo, and microscopic consults*

Total Caseload (2016 - 2019)



Monthly ML Caseload 2019



Average Daily Medicolegal Caseload



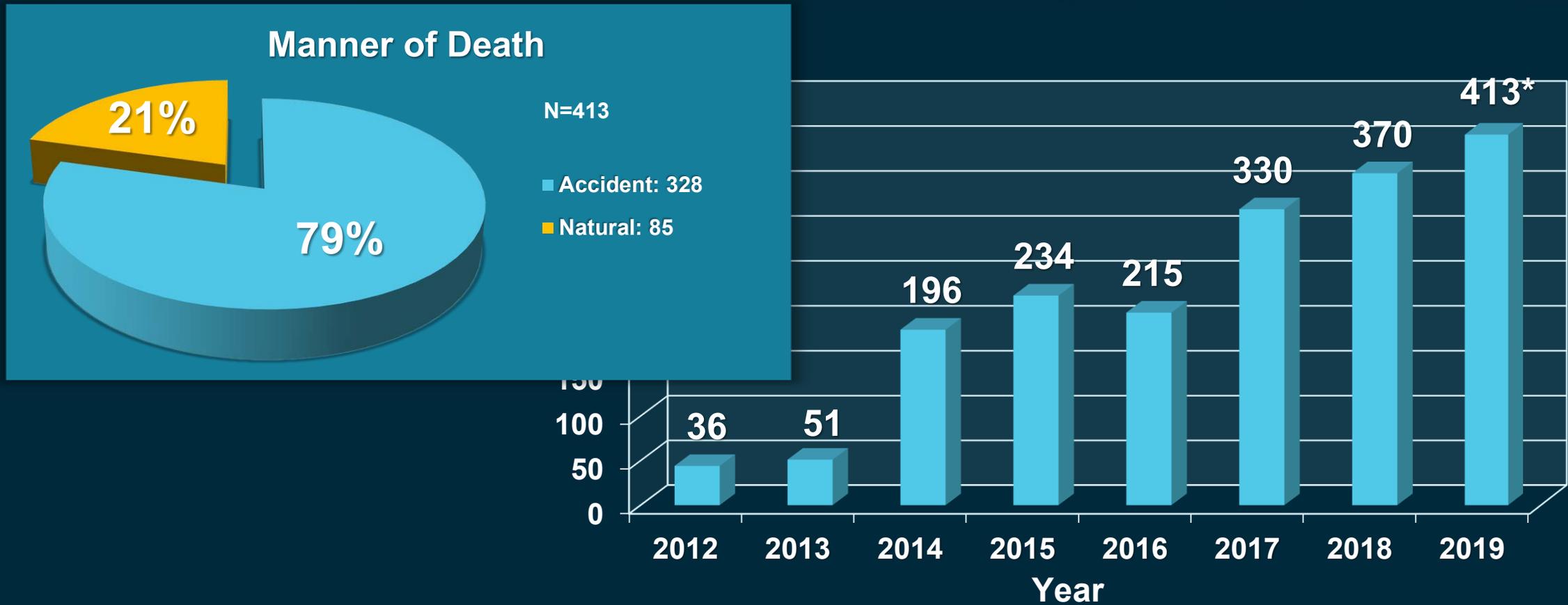
Months with **HIGHEST** Average Daily Caseload:

- 2019 December: **14.4** cases
- 2018 January: **14.0** cases
- 2017 December: **14.0** cases

Months with **LOWEST** Average Daily Caseload:

- 2019 February: **11.3** cases
- 2018 April: **11.6** cases
- 2017 September: **11.6** cases

Trauma Inquest Cases

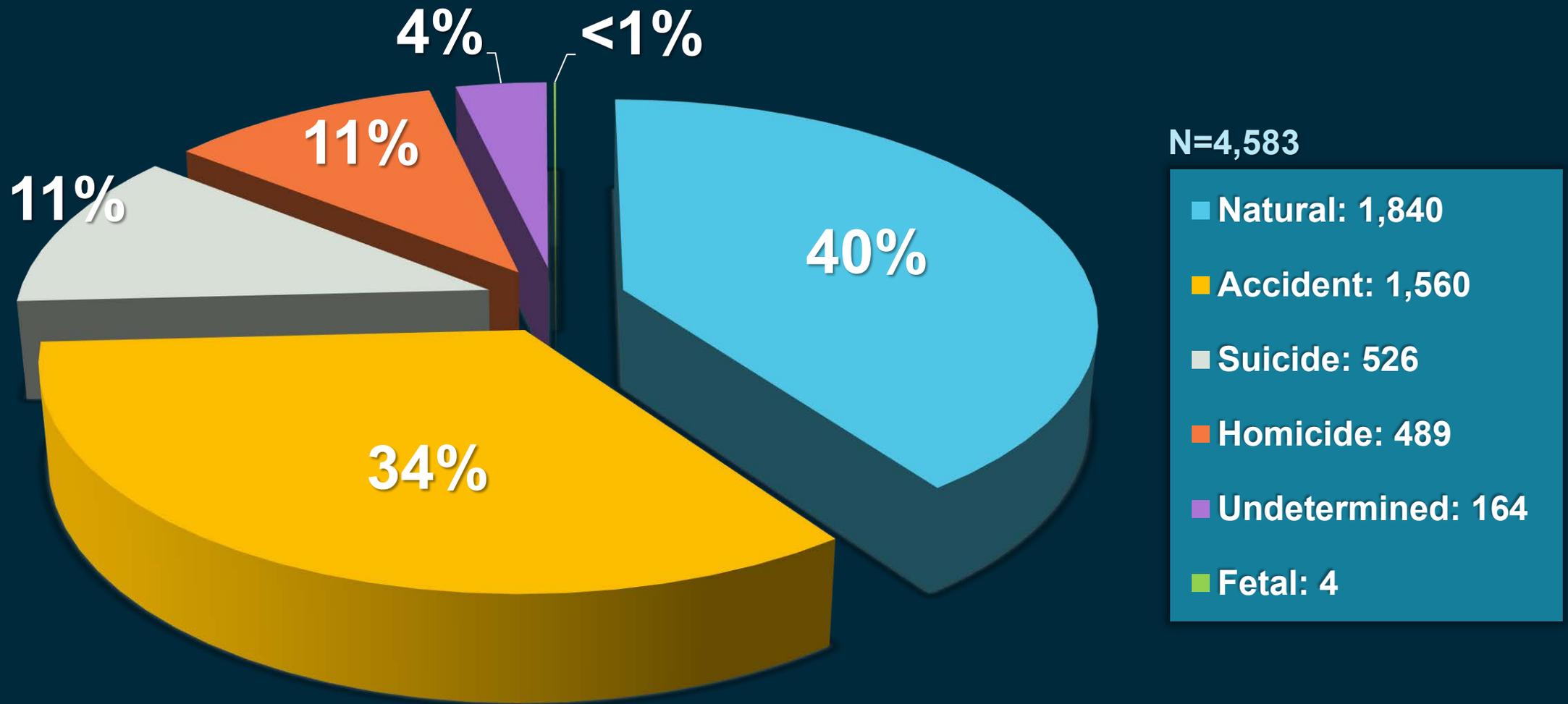


Trauma inquest is a death investigation in which the medical examiner accepts jurisdiction and completes the death certificate, but the body of the deceased is not examined by medical examiner personnel. Prior to 2014, many of the deaths that we currently handle as trauma inquests were brought in for external examination. The practice of performing a trauma inquest in these cases is a more judicious use of HCIFS personnel and streamlines family disposition of the body without compromising the accuracy of death certification.

**This was a 12% increase compared to 2018; a record high for trauma inquest cases.*

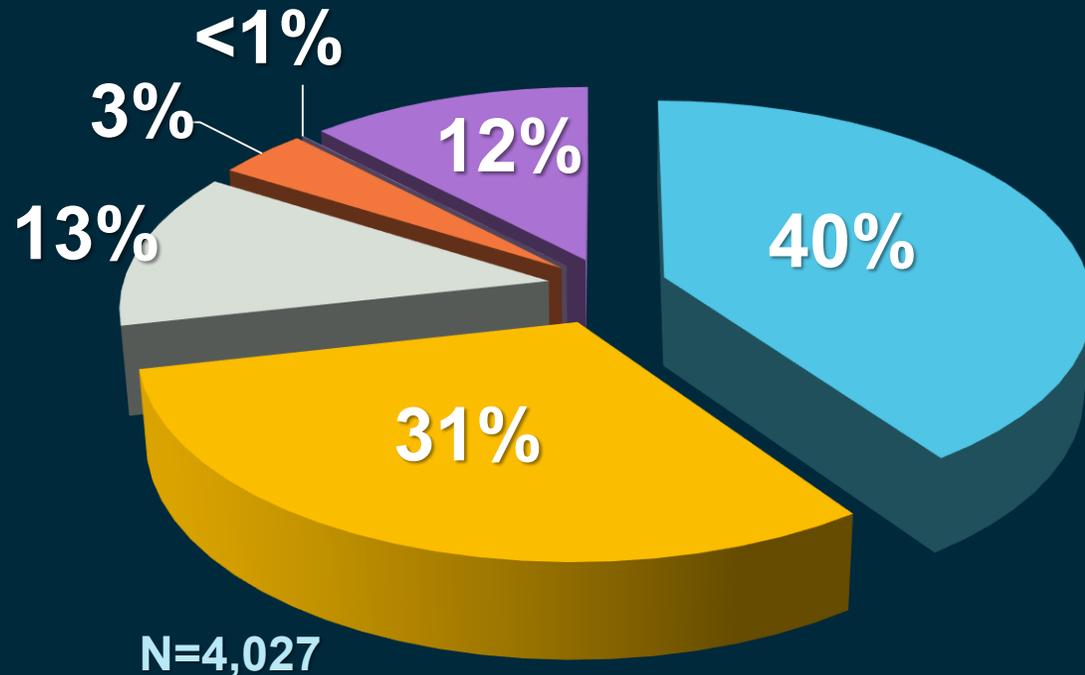


Manner of Death – Autopsy and External Examinations



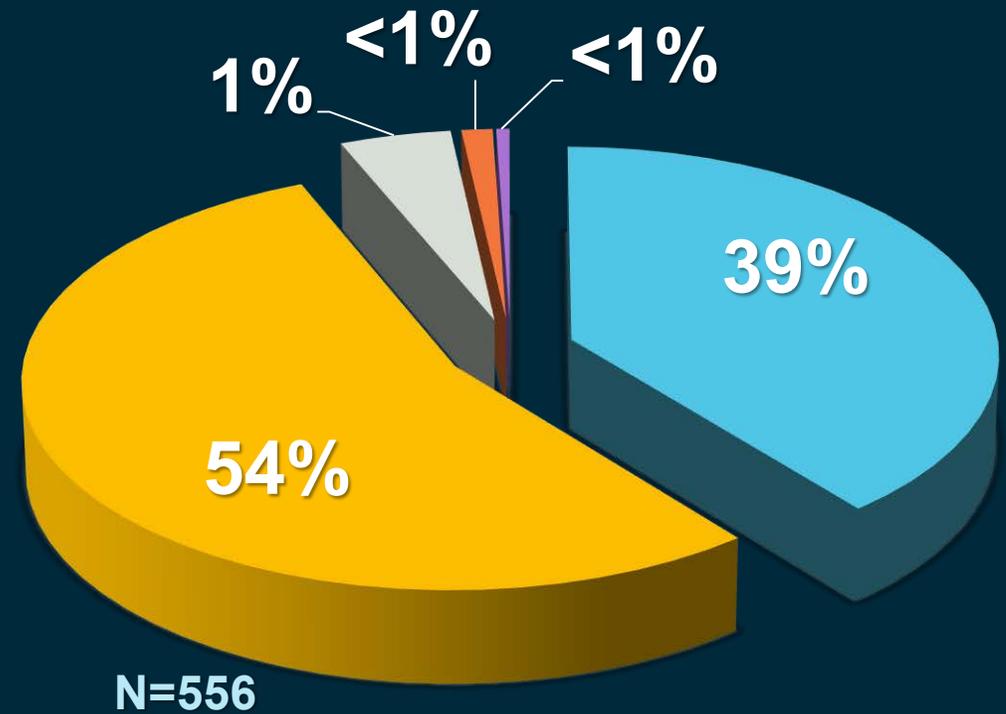
Manner of Death by Autopsy and External Examinations

Autopsy Examinations



■ Natural: 1,622	■ Accident: 1,257
■ Suicide: 501	■ Undetermined: 157
■ Fetal: 1	■ Homicide: 489

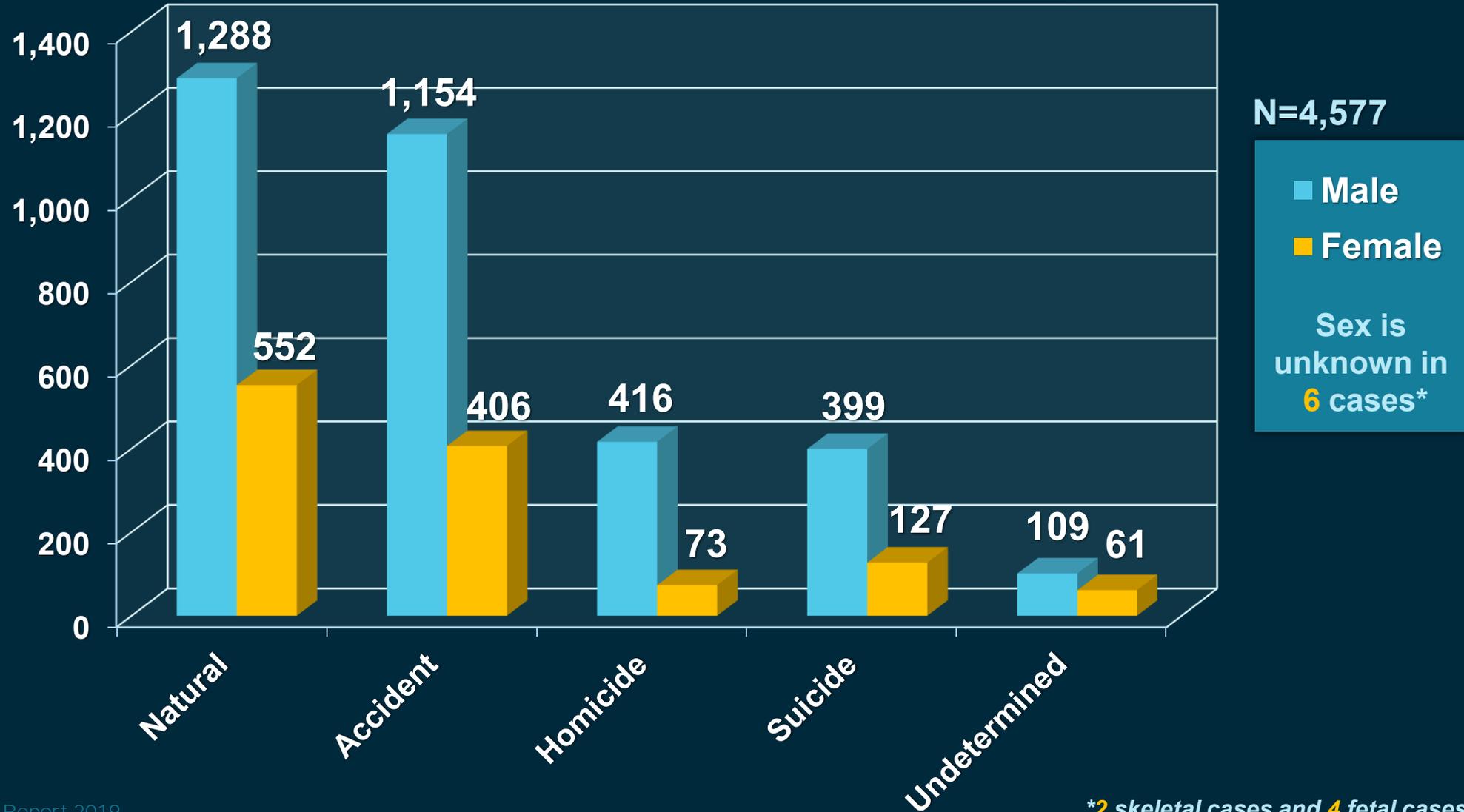
External Examinations



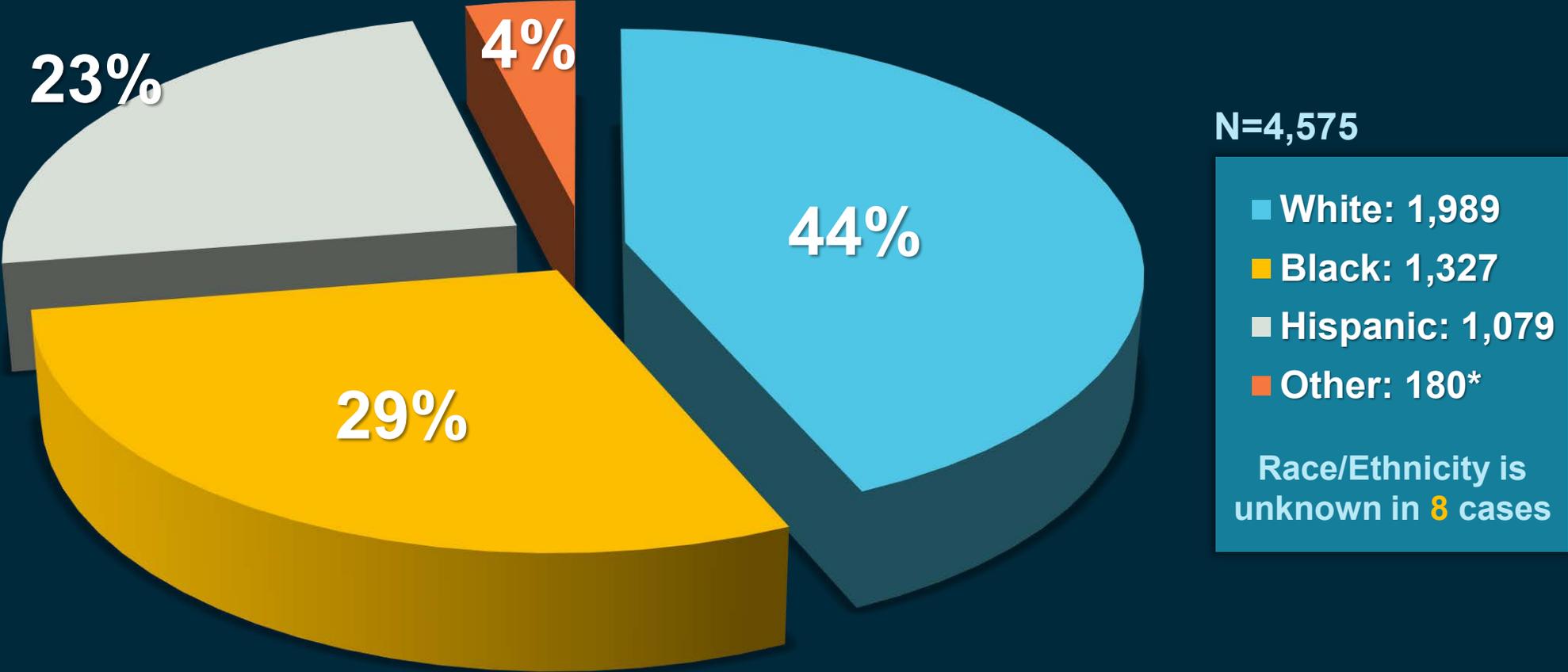
■ Natural: 218	■ Accident: 303
■ Suicide: 25	■ Undetermined: 7
■ Fetal: 3	



Manner of Death by Sex



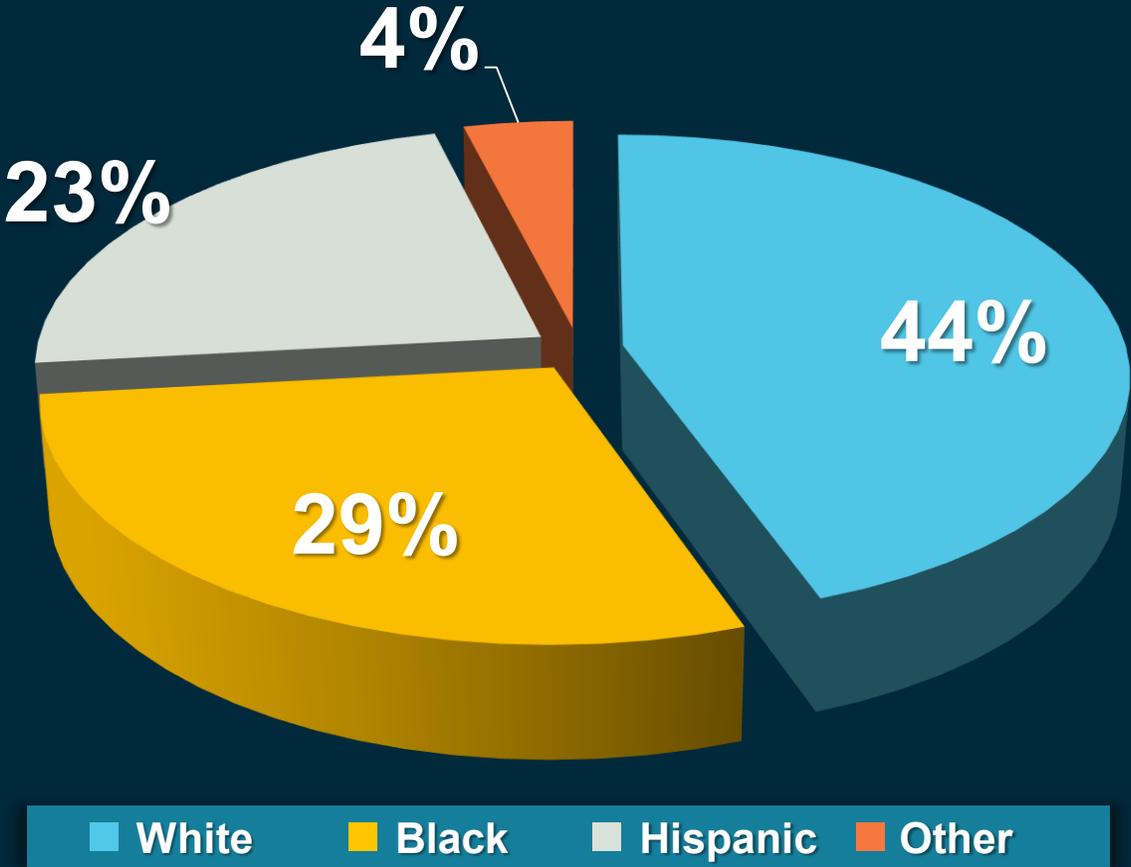
Race/Ethnicity of ML Cases



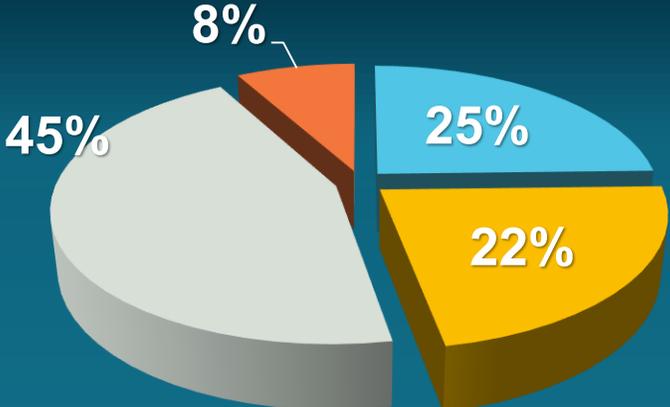
*Other is Native American (4) and Asian (176).

Race/Ethnicity Demographics Compared to Populations

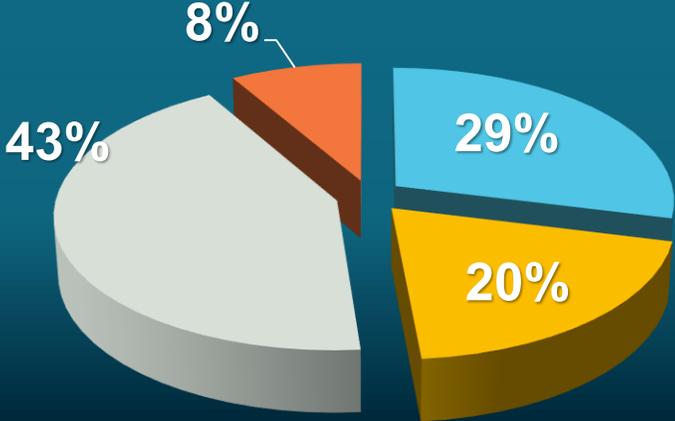
HCIFS Decedent Population*



Houston City Population**

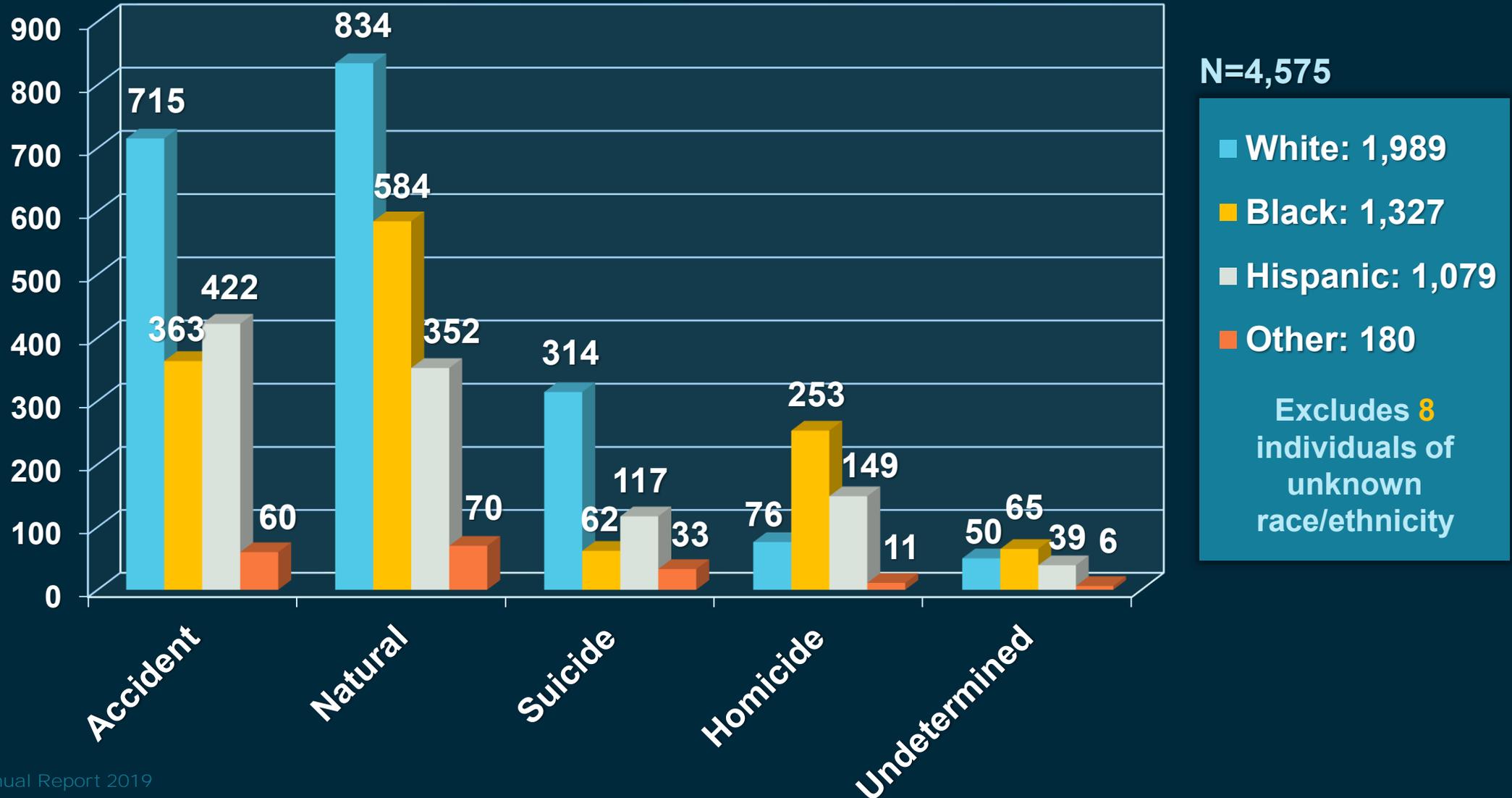


Harris County Population***

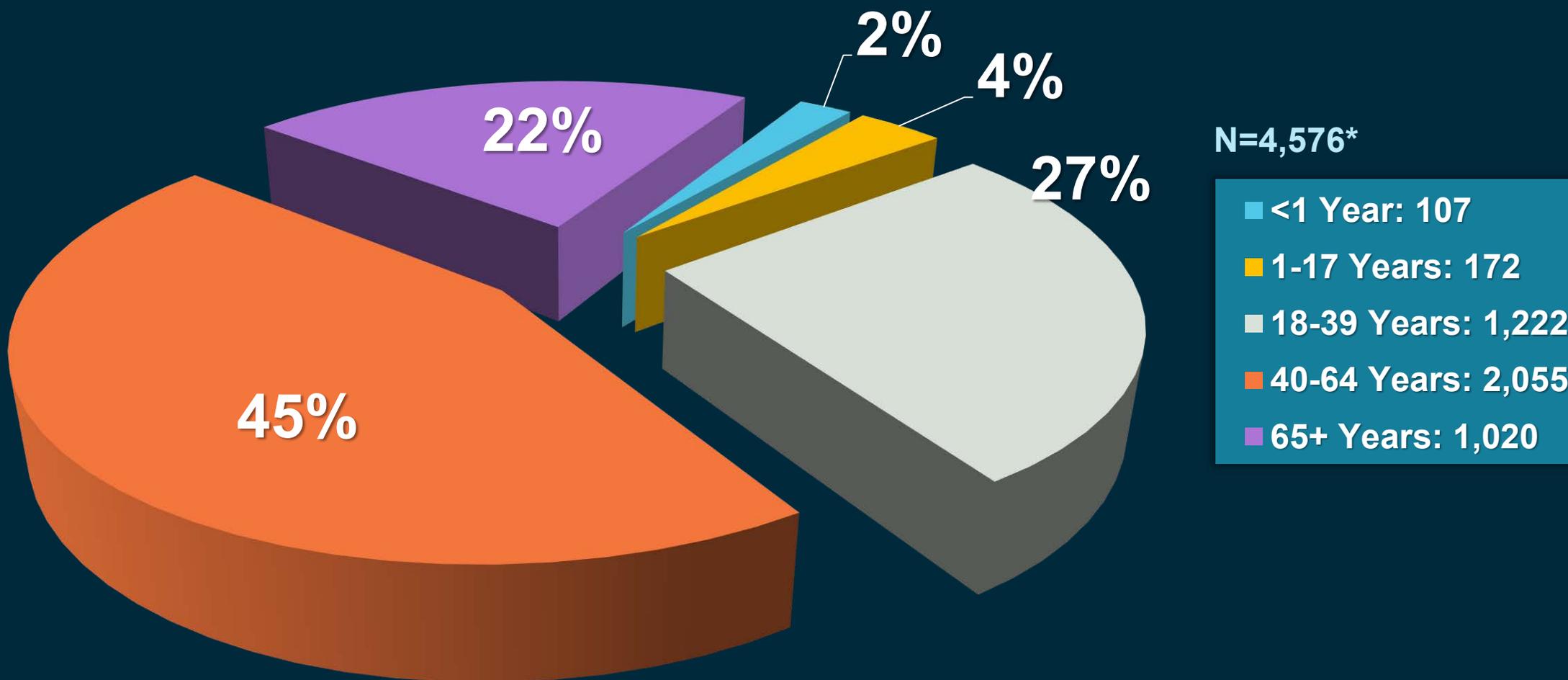


* HCIFS decedent population, **N=4,575**, excludes unknown race/ethnicity
 ** City of Houston population, **N=2,320,268**, estimated by U.S. Census Bureau as of July 1, 2019
 *** Harris County population, **N=4,713,325**, estimated by Texas DSHS Center for Health Statistics

ML Cases by Manner and Race/Ethnicity



ML Cases by Age

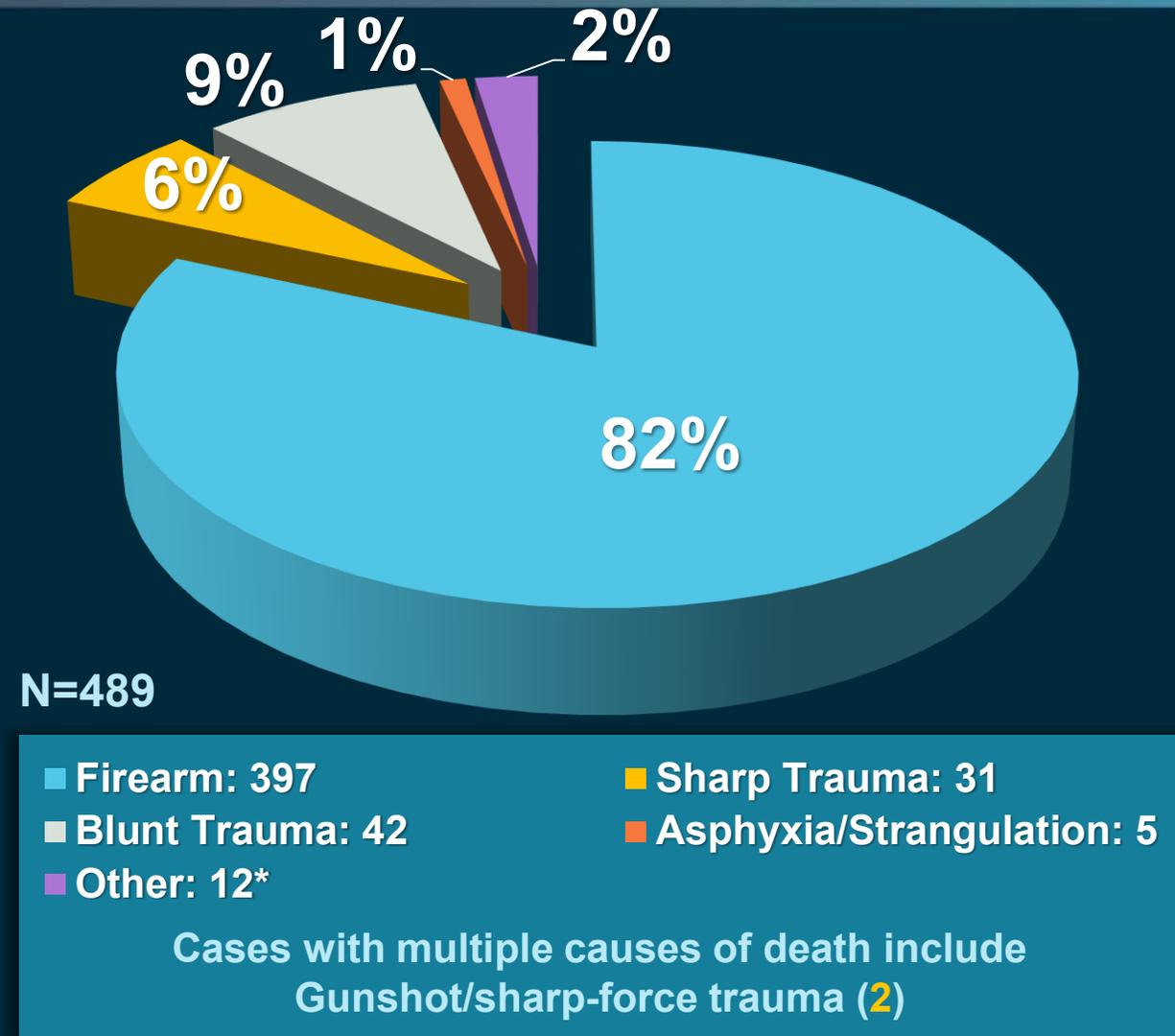


Homicide Cases

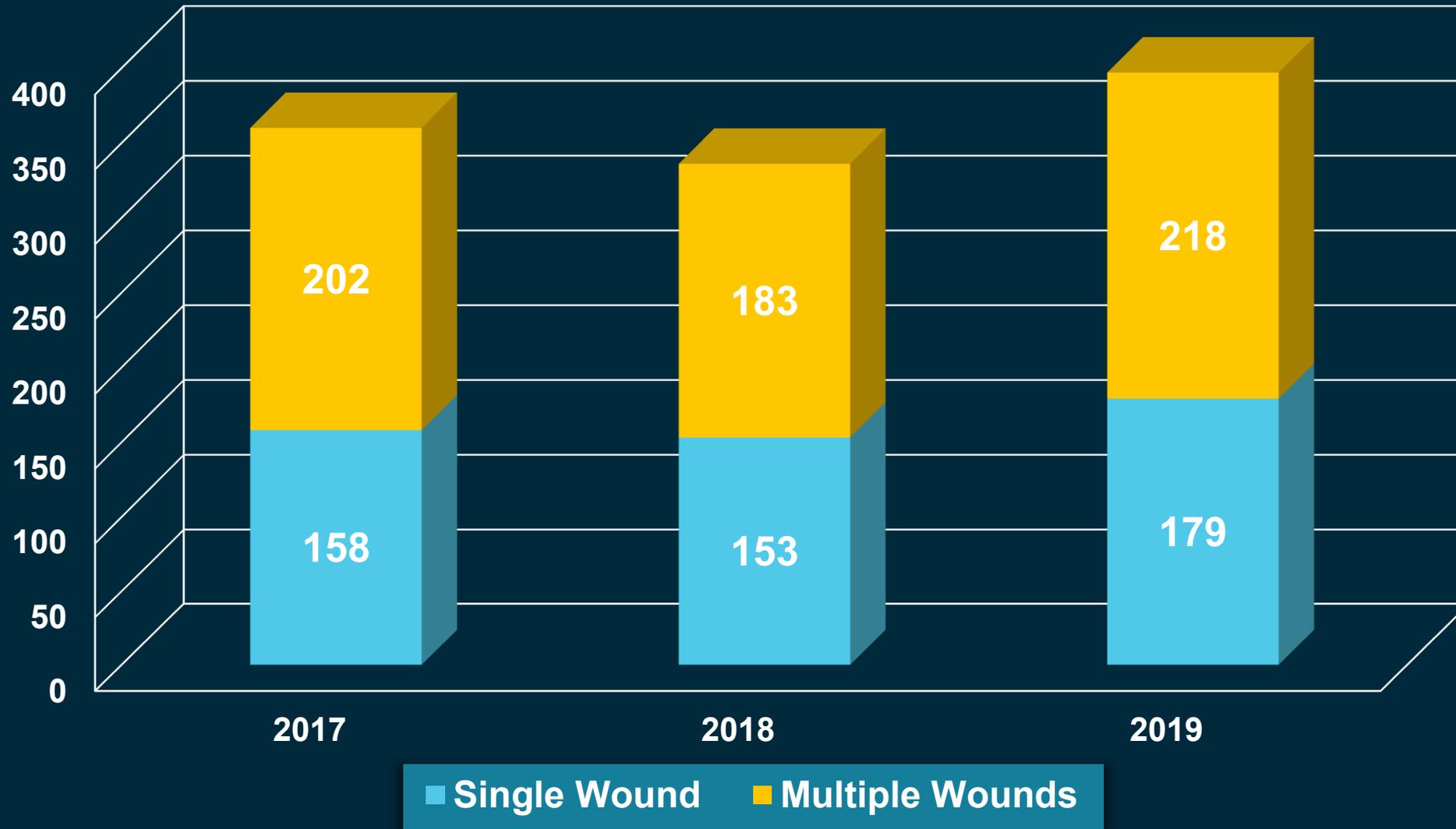


Cause of Death in Homicide Cases

- **28** cases were linked to at least one other ML case (e.g., double murder, murder suicide, etc.)
- At least **38** homicide cases were associated with domestic violence
- **13** homicide deaths occurred “while at work”

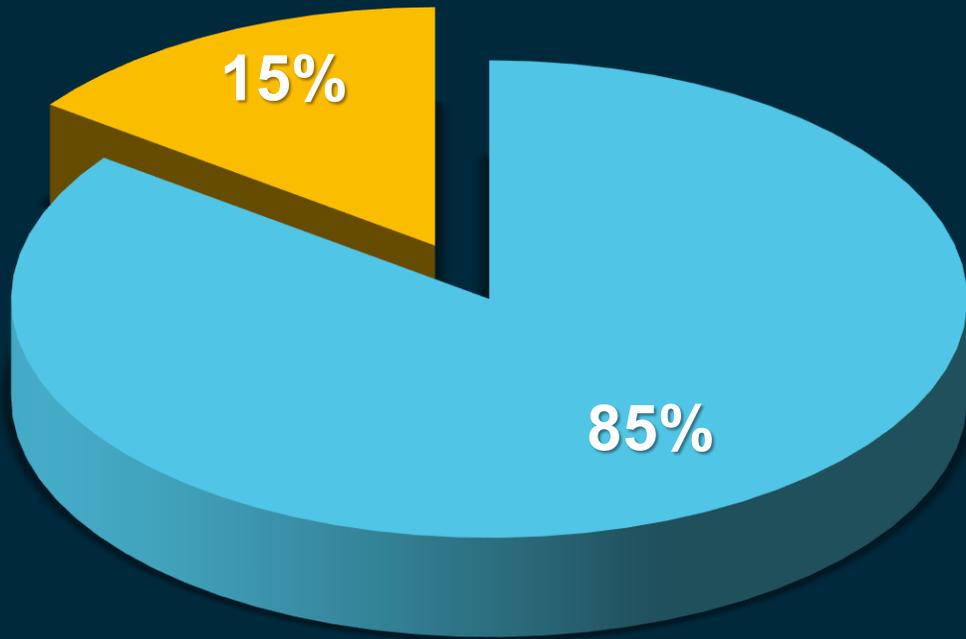


Homicide Deaths by Firearms



Homicide Deaths by Demographics

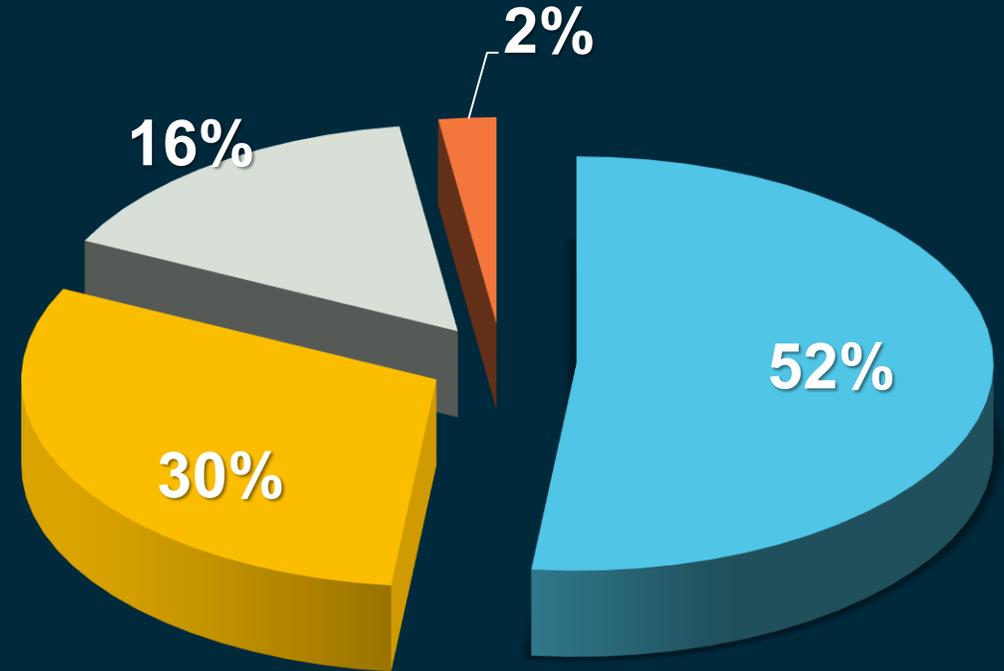
Sex



■ Male: 416 ■ Female: 73

Race/Ethnicity

N=489

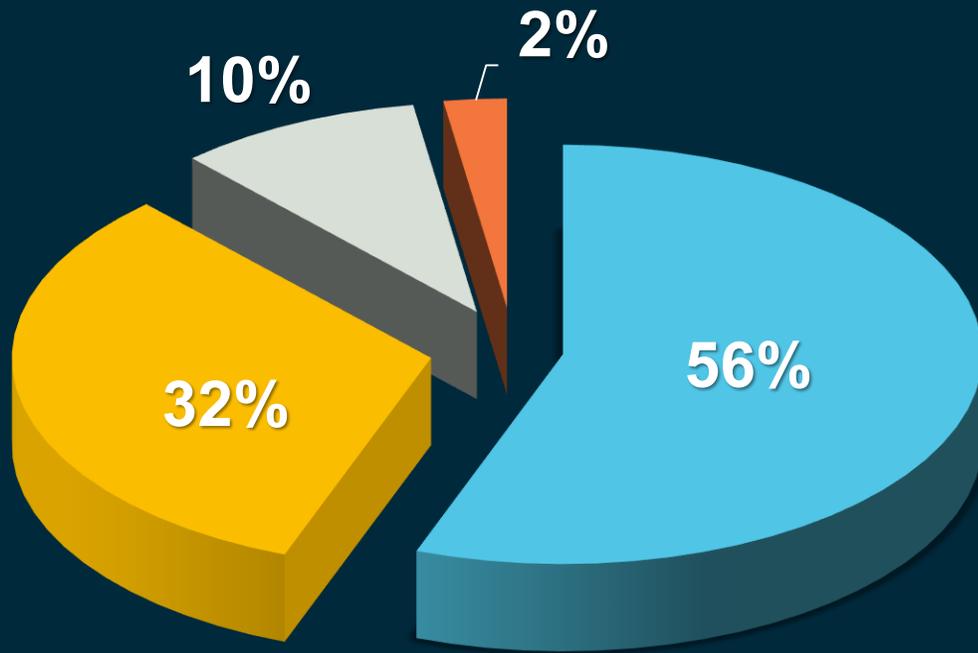


■ Black: 253 ■ Hispanic: 149
■ White: 76 ■ Asian: 11



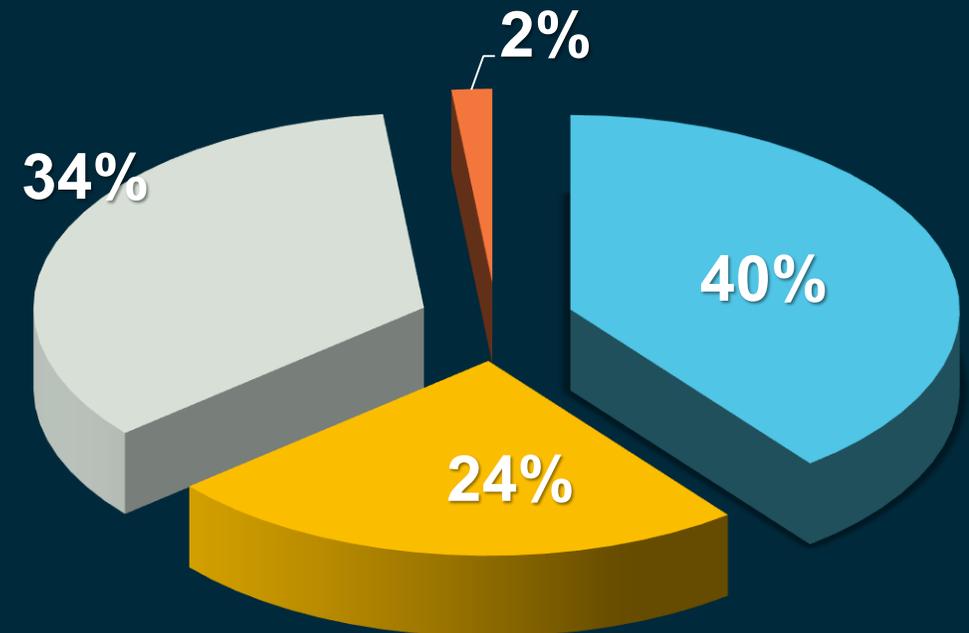
Homicide Deaths by Race/Ethnicity and Location

City of Houston



N=370*

Harris County Excluding the City of Houston

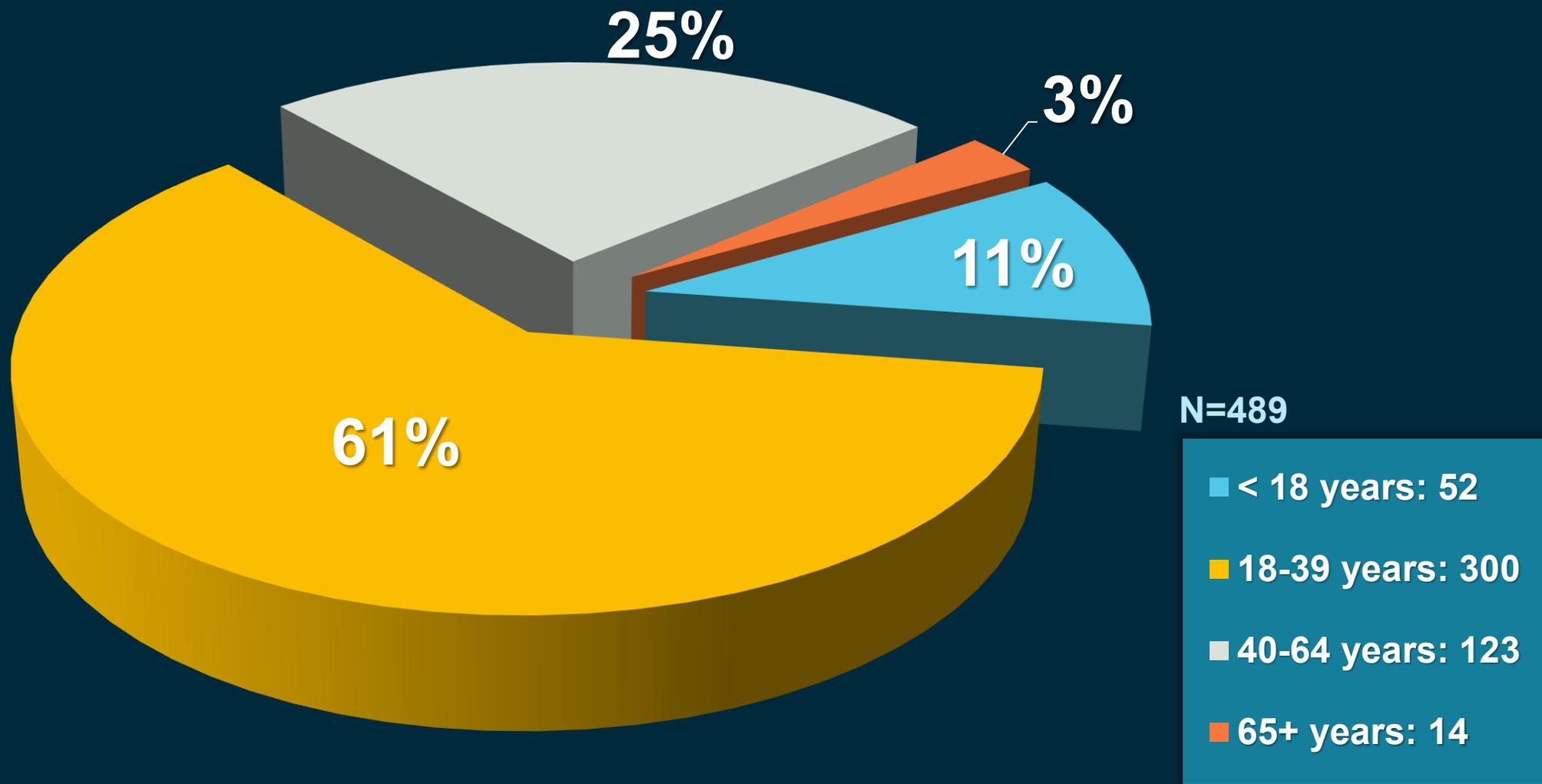


N=119

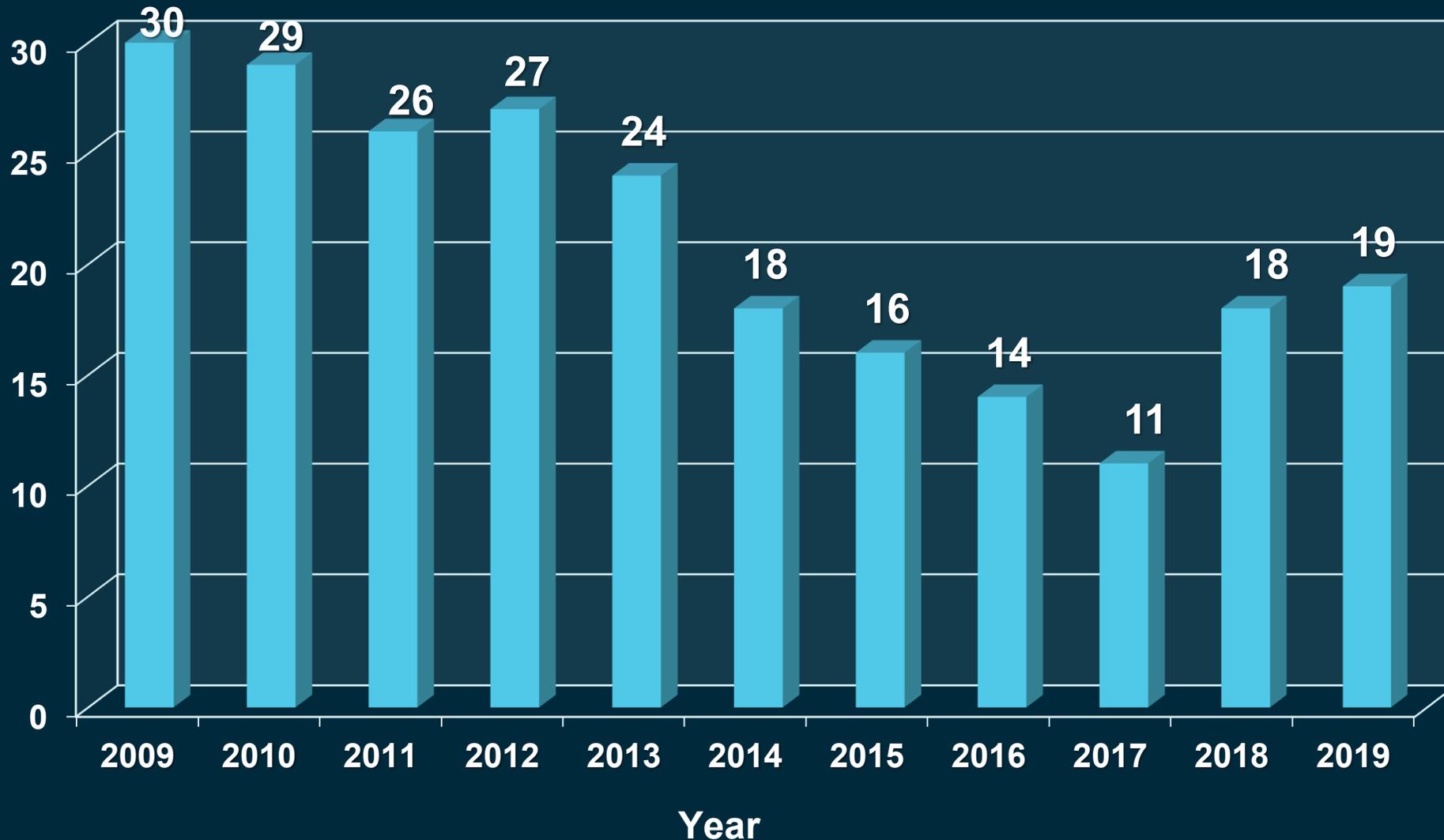


* 370 homicide cases were attributed to injury locations within the City of Houston based on the address of the place of injury and law enforcement jurisdiction.

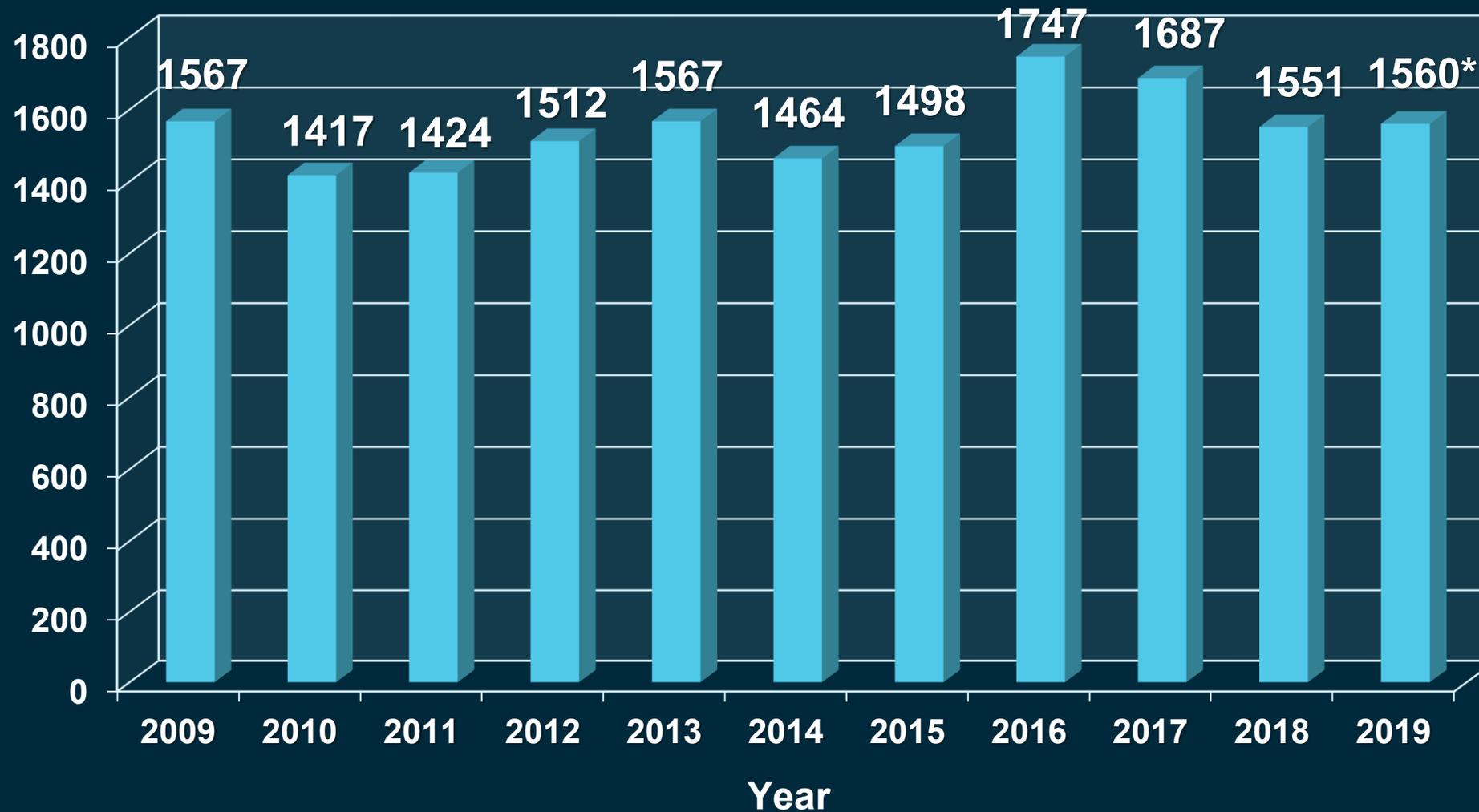
Homicide Deaths by Age



Homicide Deaths of Infants and Toddlers (Age 0 - 4)

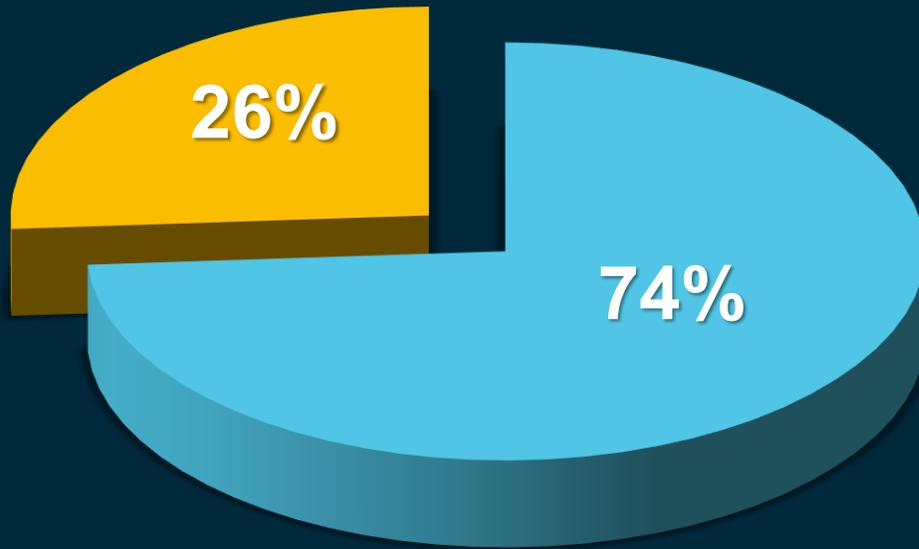


ML Accidental Cases



ML Accidental Deaths by Demographics

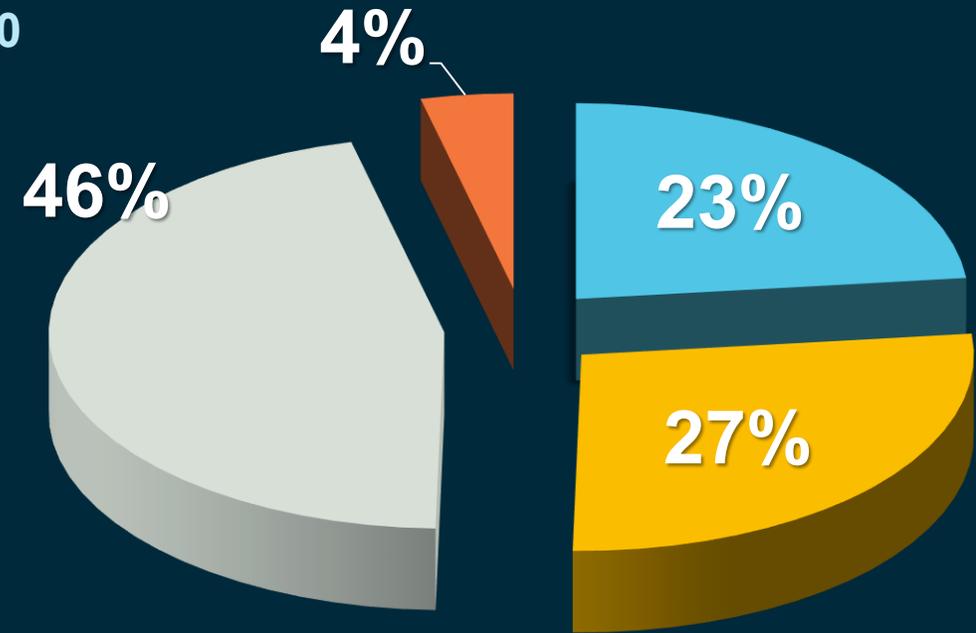
Sex



■ Male: 1,154 ■ Female: 406

Race/Ethnicity

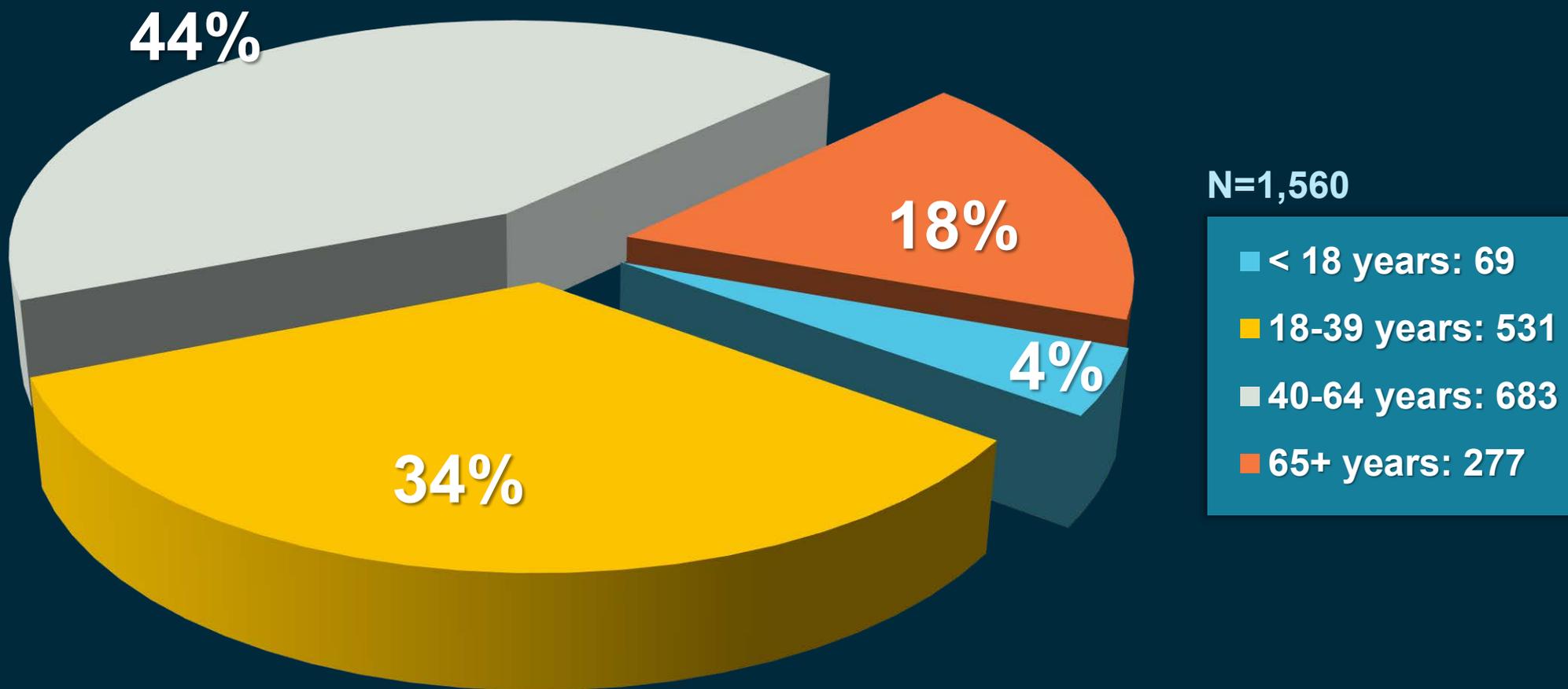
N=1,560



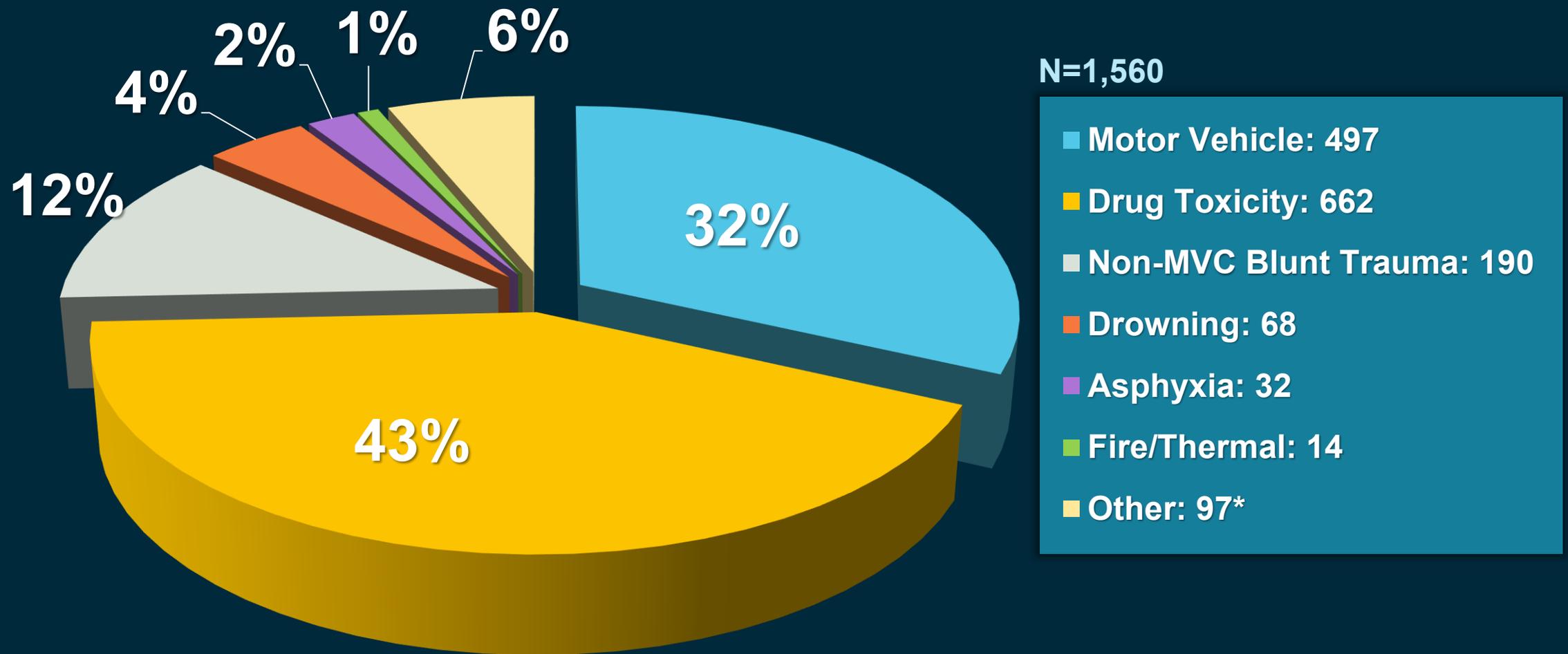
■ Black: 363 ■ Hispanic: 422
■ White: 715 ■ Asian: 59



ML Accidental Deaths by Age



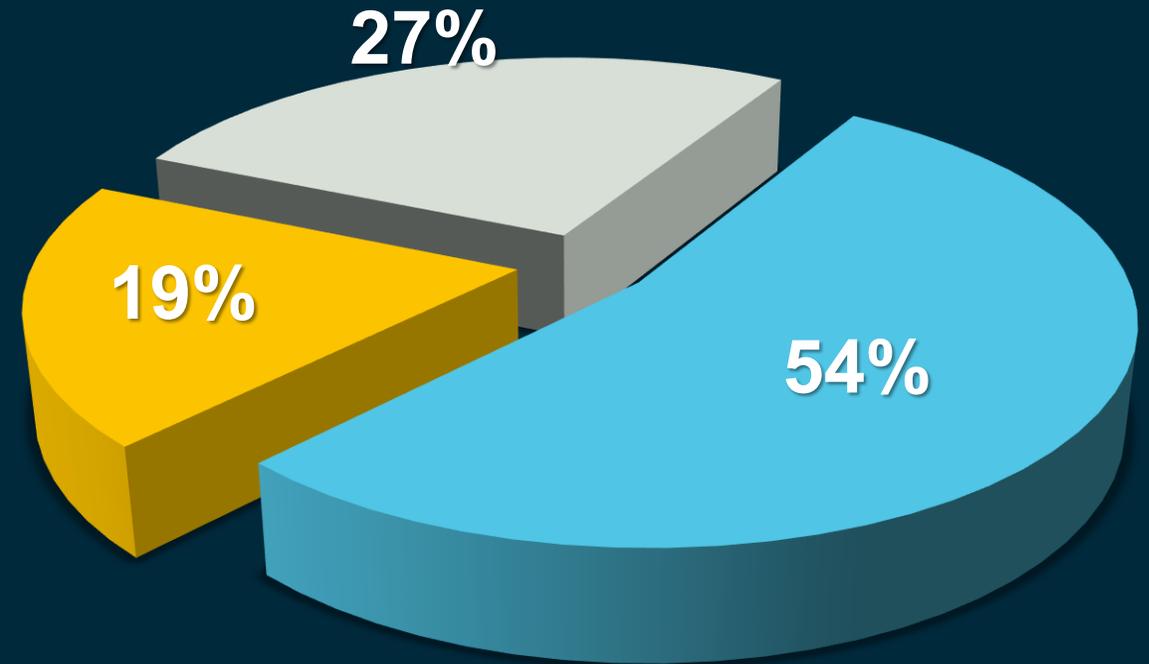
Most Common Causes of ML Accidental Deaths



* Other includes firearm injuries, sharp force injuries, hyperthermia, hypothermia, and therapeutic complications.

Motor Vehicle Crash (MVC) Death Cases

- MVC fatalities include **31** children aged 2 months to 17 years
- **8** children were pedestrians, aged 2 years to 17 years of age
- **21%** of driver fatalities (**55**) were under 25 years of age
- **20** stranded motorists were hit while stopped



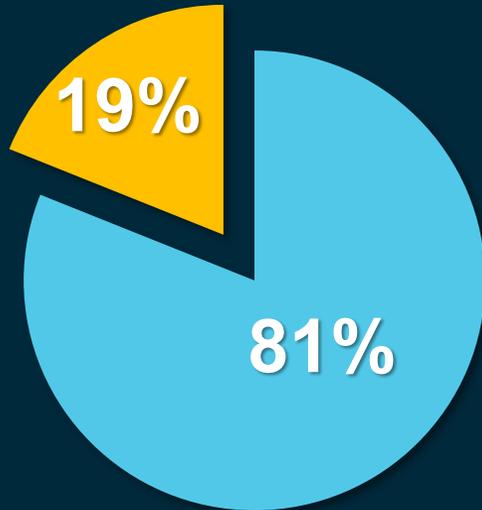
N=497

- Driver: 259
- Passenger or Unknown Position: 103
- Pedestrian: 135



MVC Sex and Age

Driver's Sex

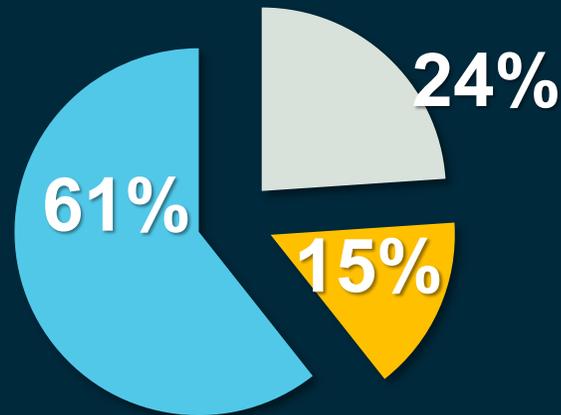


N=259

■ Male: 210
■ Female: 49

The youngest driver was 6 and the oldest was 93.

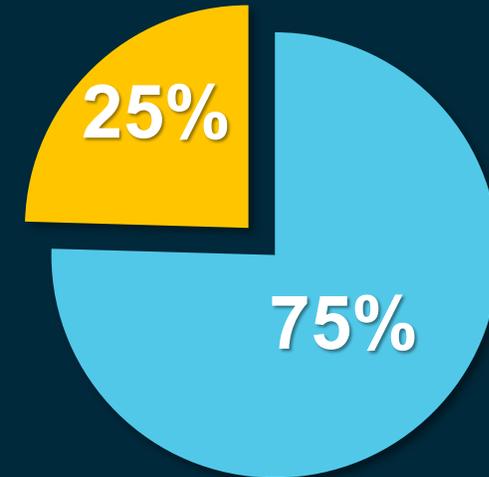
Proportion of drivers who were teens or senior citizens



N=259

■ 16 to 25 years: 62
■ 65+ years: 40
■ Other Ages: 157

Total MVCs



N=497

■ Male: 375
■ Female: 122



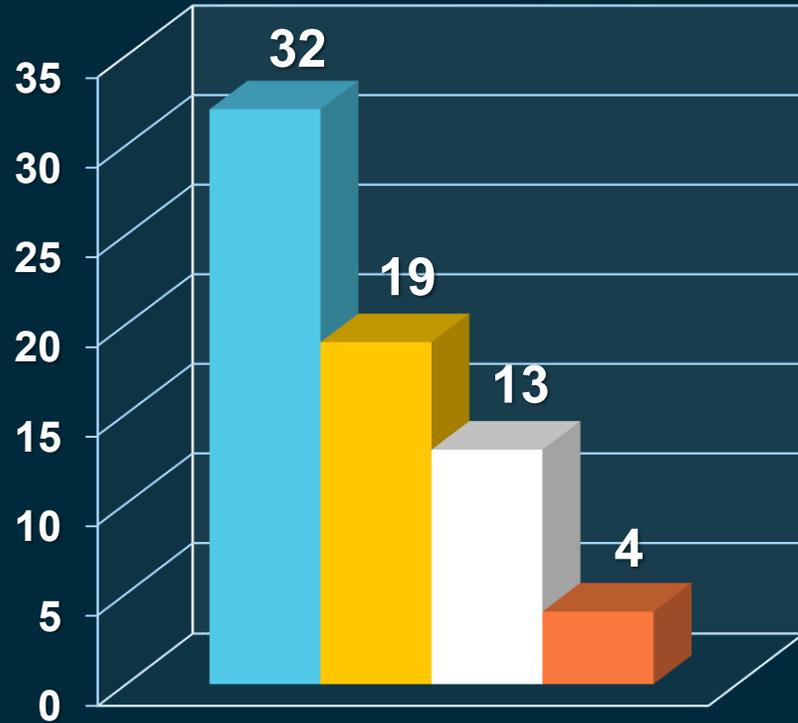
Accidental Drowning

- **68** Accidental Drowning deaths in 2019
- Age range was **8** months to **88** years
 - Includes **15** children ages 2 to 7 years
 - **48** of the drowning cases were males; **20** were females



Accidental Drowning

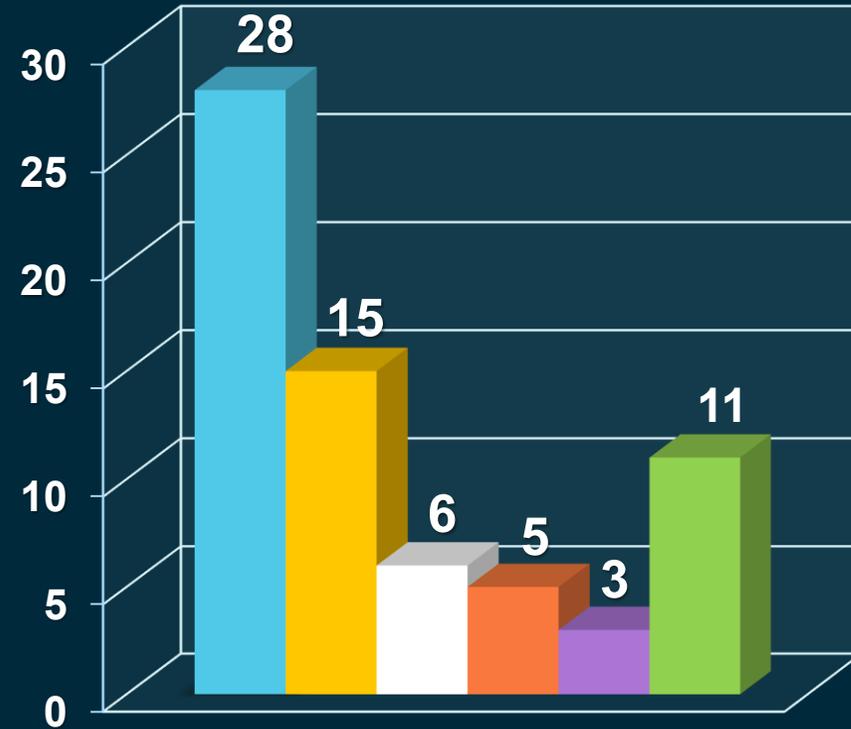
Race/Ethnicity



N=68

■ White ■ Black ■ Hispanic ■ Asian

Type of Water

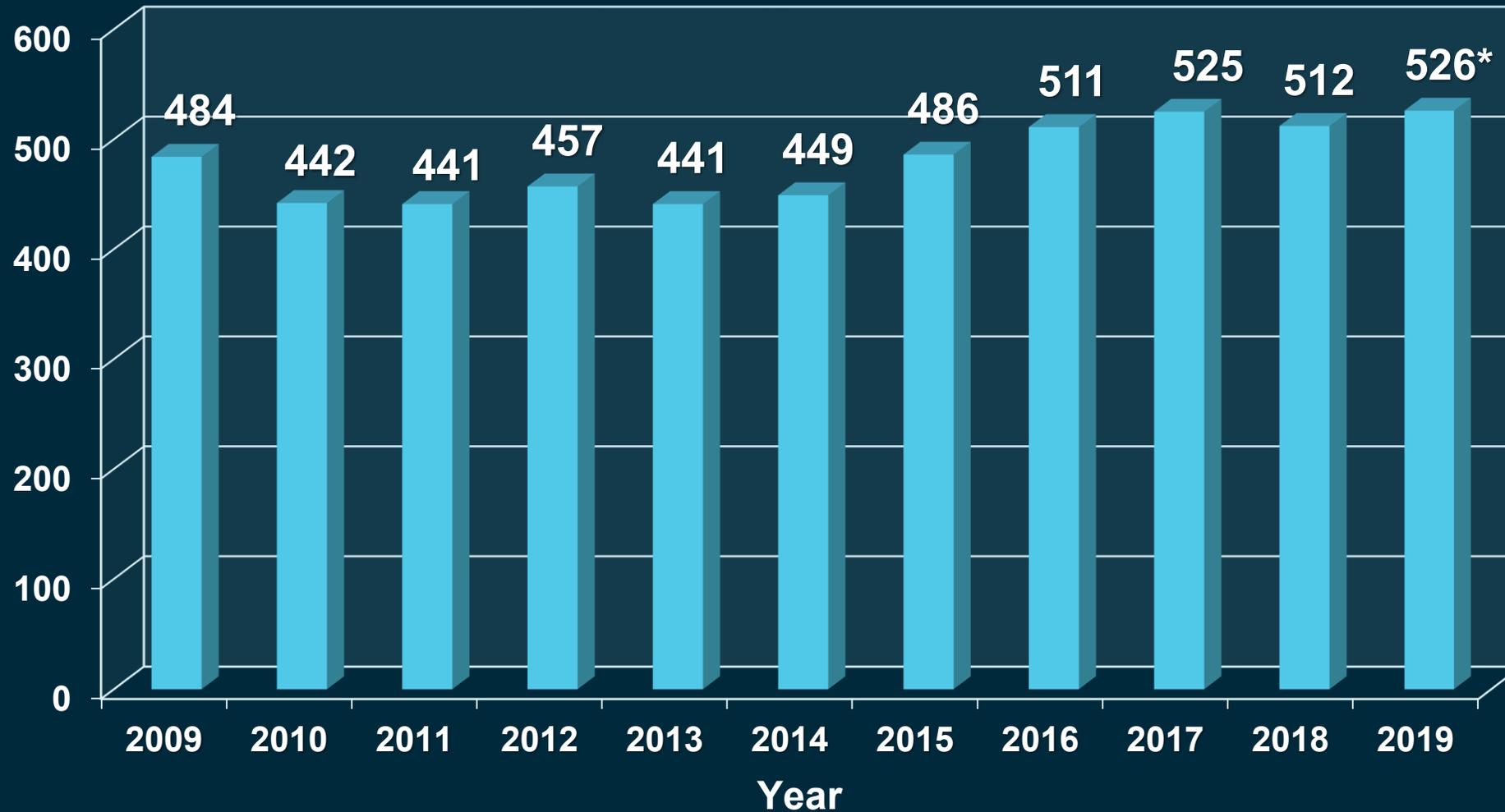


N=68

■ Residential Pool ■ Natural Water
 ■ Bath Tub ■ Community Pool
 ■ Lake/Pond ■ Other*



ML Suicide Cases

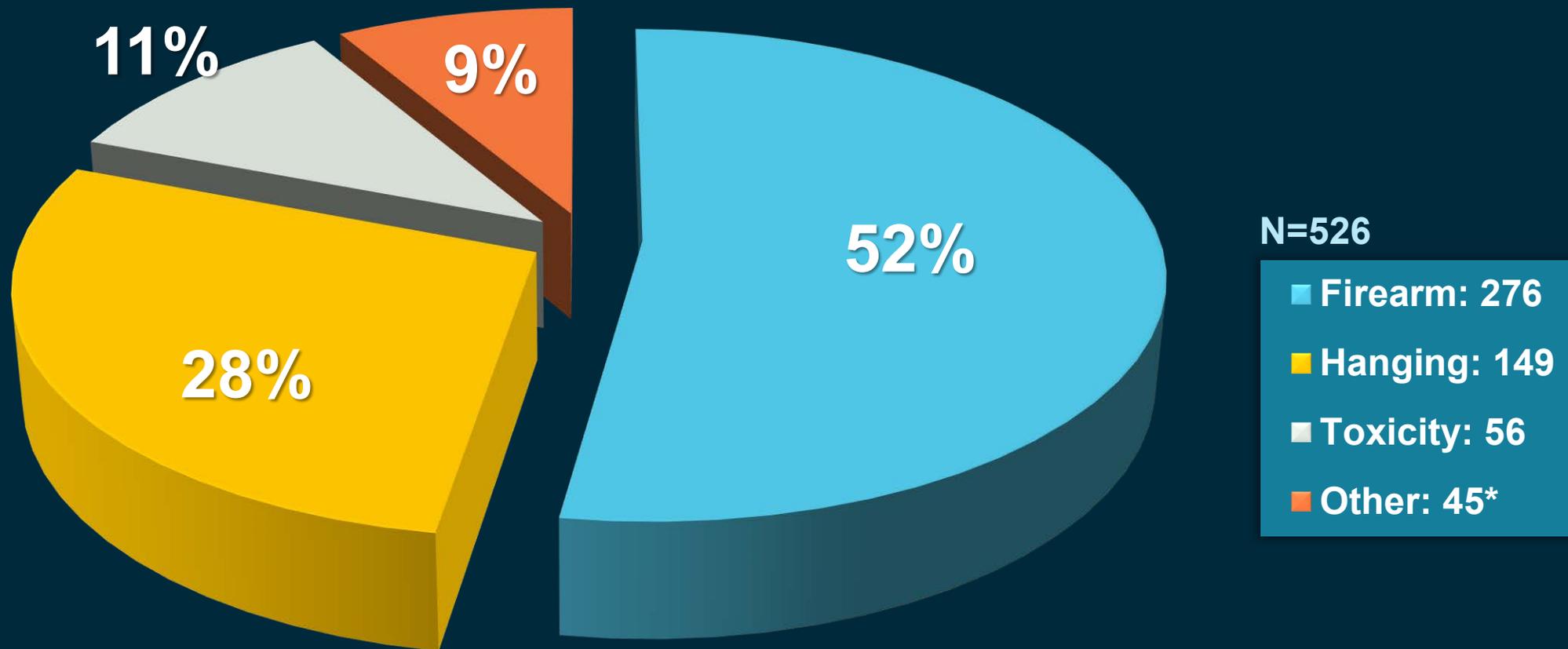


ML Suicide Demographics

- Male to female ratio is **3.15** to **1**.
- Age range is **10** to **92** years.
- The majority (**60%**) of suicide cases were white.
- Number of companion Suicide/Homicide cases:
 - 2016: 11
 - 2017: 17
 - 2018: 14
 - **2019: 10**

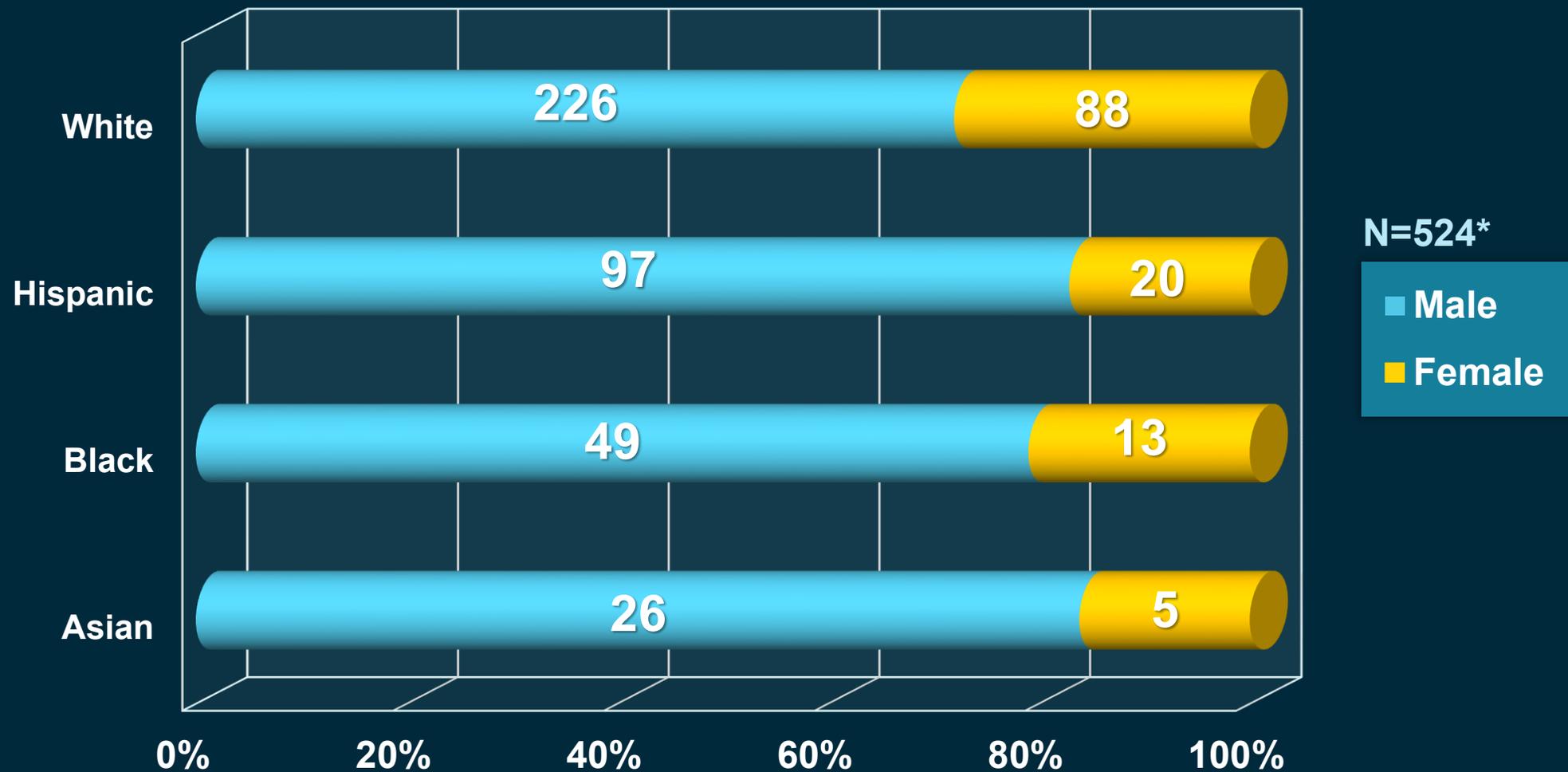


Causes of Death in ML Suicides

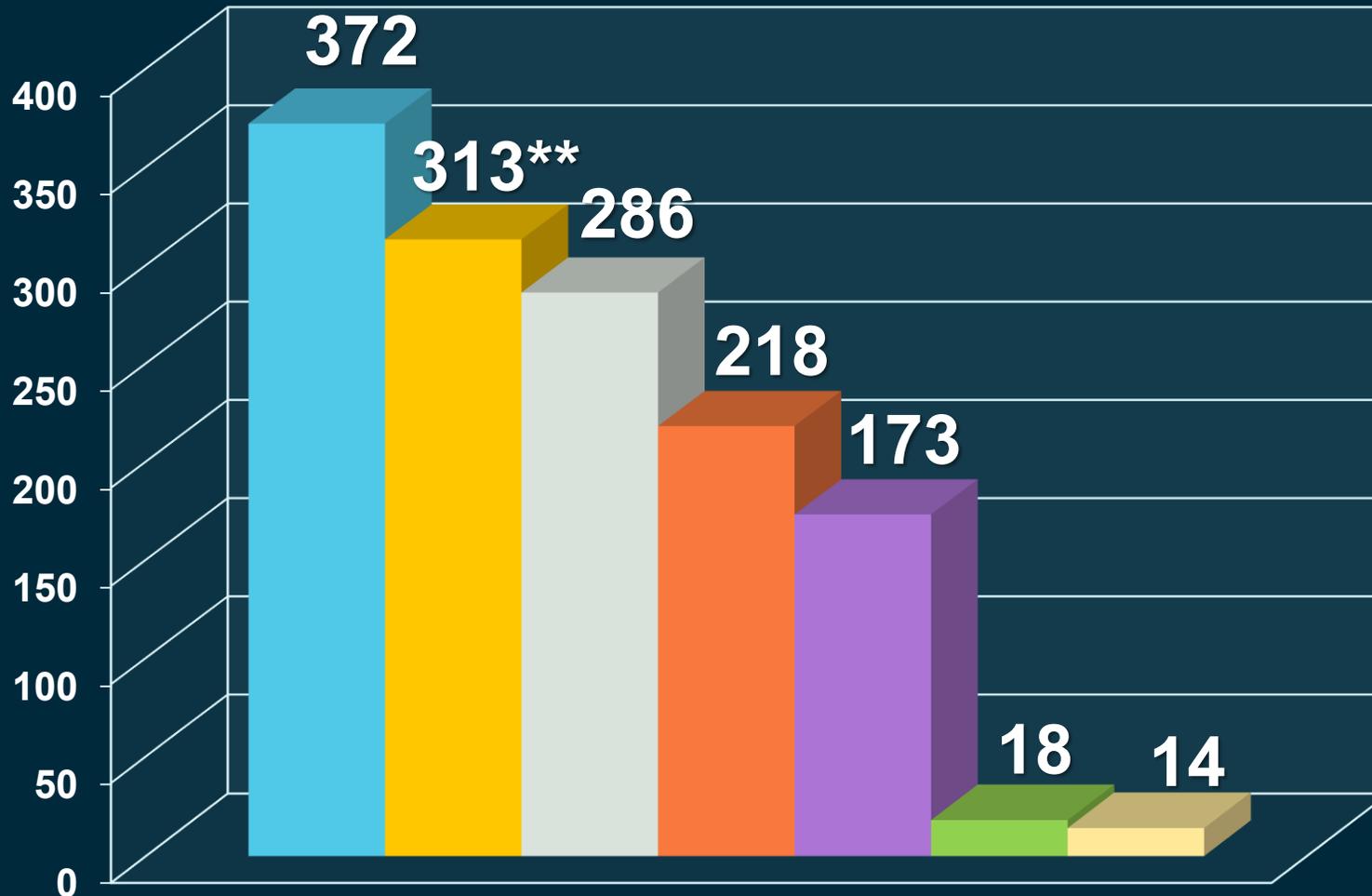


* Other category contains: Blunt Force Trauma (28), Asphyxiation-not due to hanging (5), Sharp Force (7), Thermal (2) and Drowning (3)

ML Suicide Cases by Sex and Race/Ethnicity



Most Frequent Substances Listed in Cause of Death for ML Cases



N=725*

- Opiates/Opioids
- Ethanol
- Cocaine
- Amphetamine/Meth
- Benzodiazepines
- Carisoprodol
- Acetaminophen

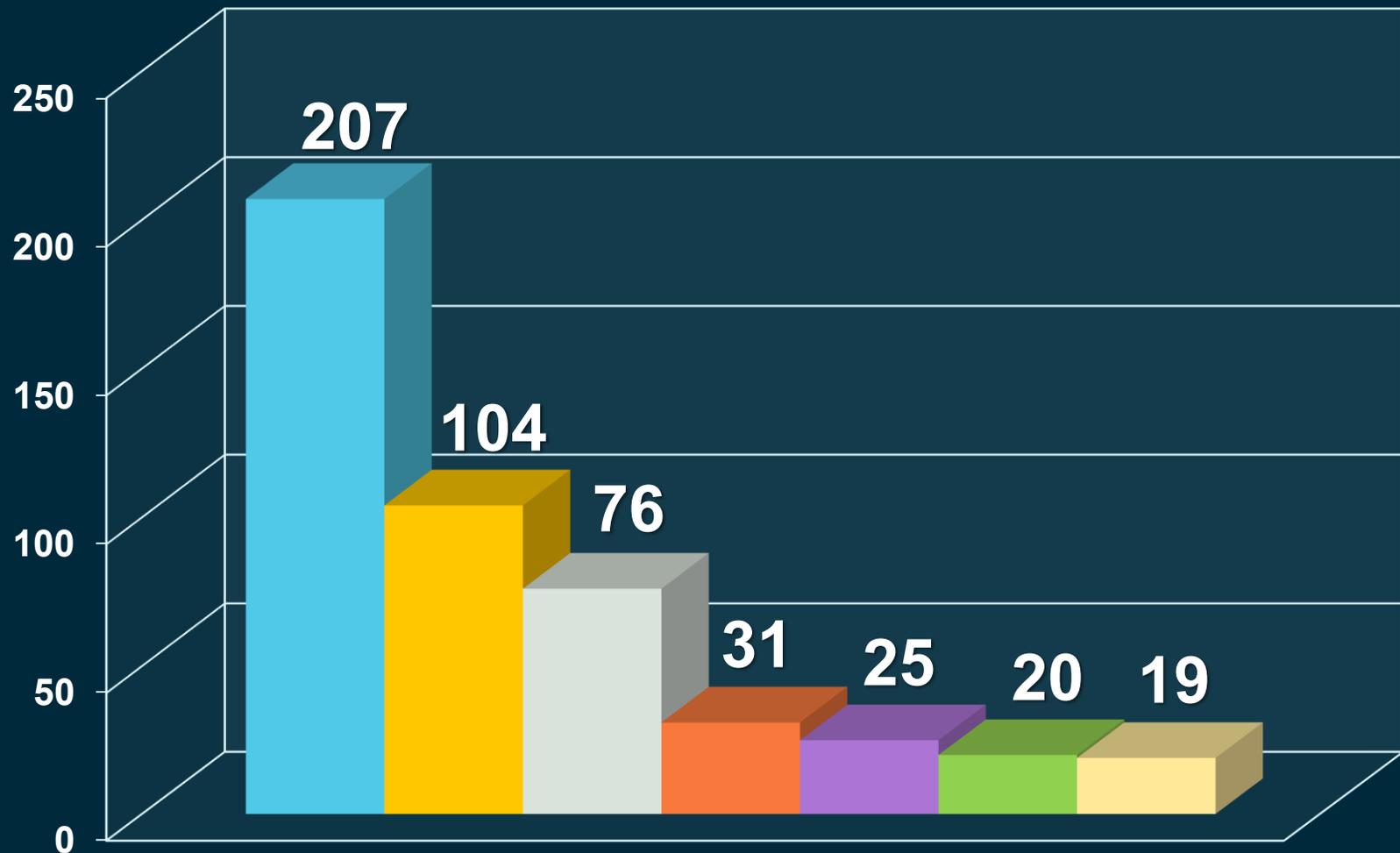
These data do not reflect discrete cases because drugs may be combined within a case.



* This number represents total toxicity deaths in 2019.

** Includes both acute ethanol toxicity and chronic alcoholism/ethanolism.

Opiates/Opioids Listed in Cause of Death for ML Cases



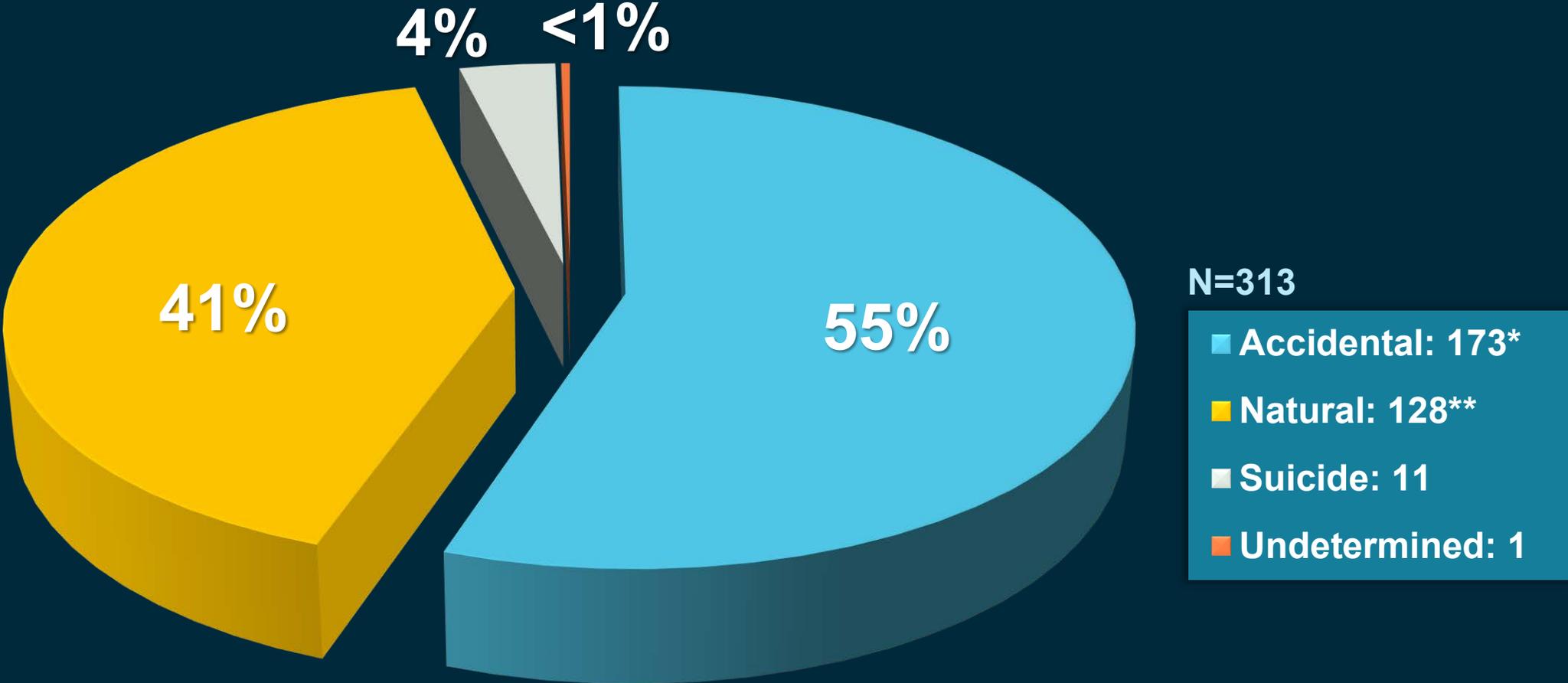
N=372

- Heroin
- Fentanyl and Analogs
- Hydrocodone
- Oxycodone
- Morphine
- Methadone
- Codeine

These data do not reflect discrete cases because drugs may be combined within a case.



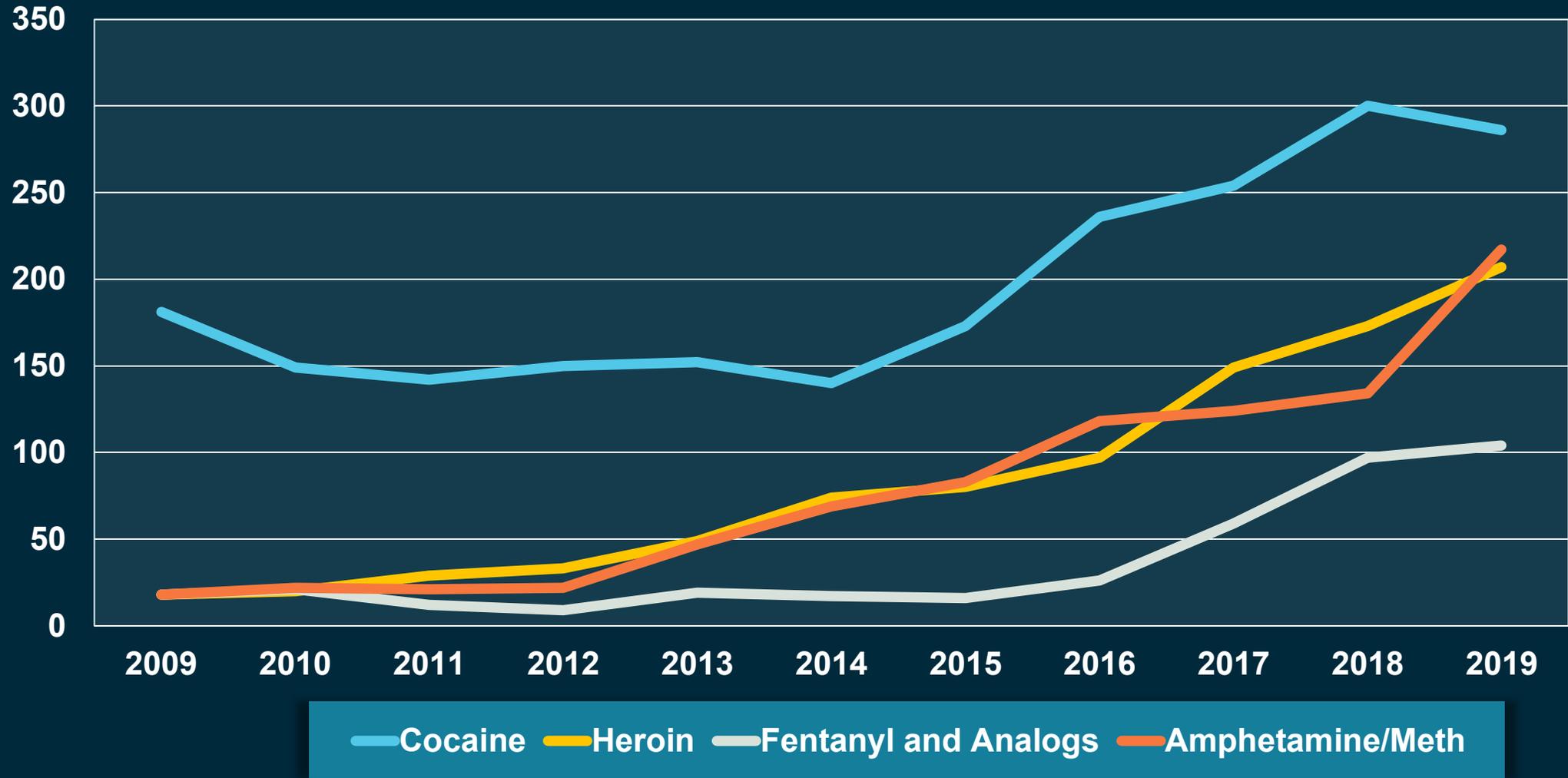
Ethanol Toxicity in Cause of Death for ML Cases



* For 17 accidental cases, ethanol is the sole intoxicant; And 21 cases with acute alcoholism
** For 57 deaths, the cause of death was attributed solely to chronic alcoholism.



Trends in Death from Selected Drugs



Infant/Fetal Deaths

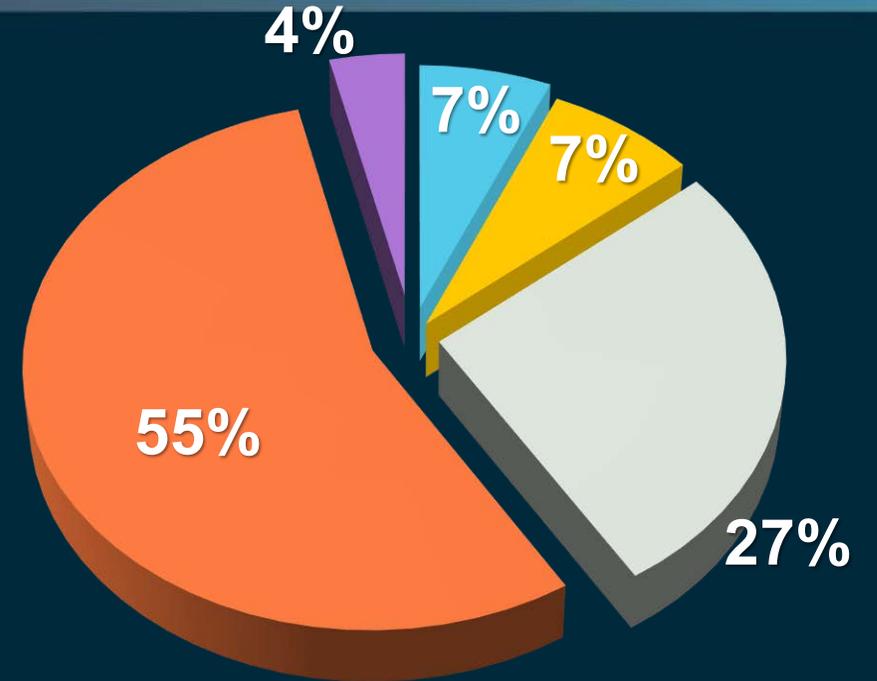
The birth count for Harris County is estimated to be 72,477 for 2019

(Data provided by Texas Department of State Health Services)

107 infant/fetal death cases

(age less than 1 year)

- **59** cases of Undetermined Manner
 - **25** were classified as Undetermined (co-sleeping)*
- The cause of death in **7** of the **29** infant deaths with a natural manner was SIDS



N=107

■ Accident: 7	■ Homicide: 8
■ Natural: 29	■ Undetermined: 59
■ Fetal: 4	

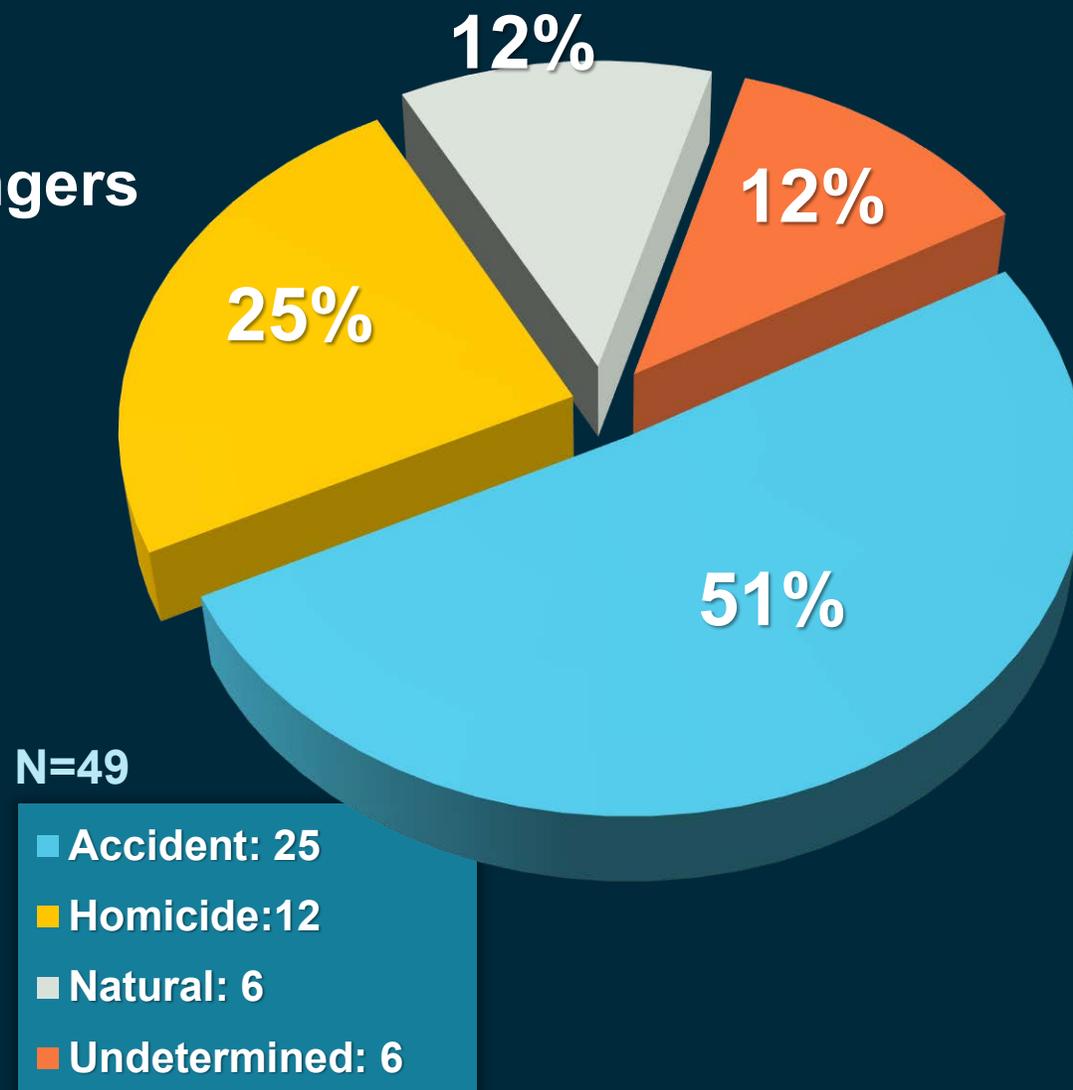
* “Undetermined (co-sleeping)” are cases with no anatomic findings to indicate a cause of death, toxicological cause of death, or suspicion of foul play by investigation, but were co-sleeping with another individual at the time of their demise. These cases would otherwise be classified as Sudden Infant Death Syndrome (SIDS) but for the possibility of overlay. Therefore, the cause of death in this subset of cases was classified as “undetermined (co-sleeping).”



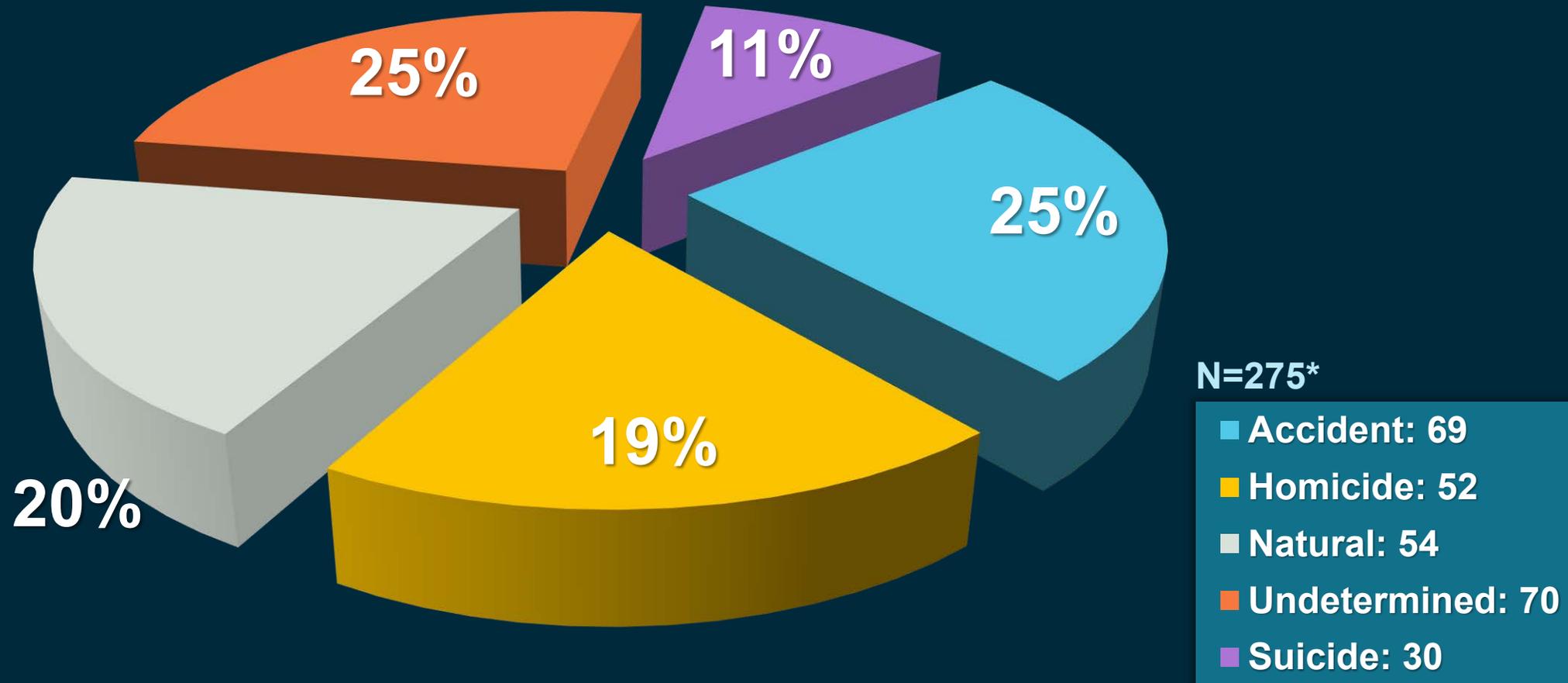
Toddler Deaths (Age 1 - 4 Years)

▪ Injury Deaths Include:

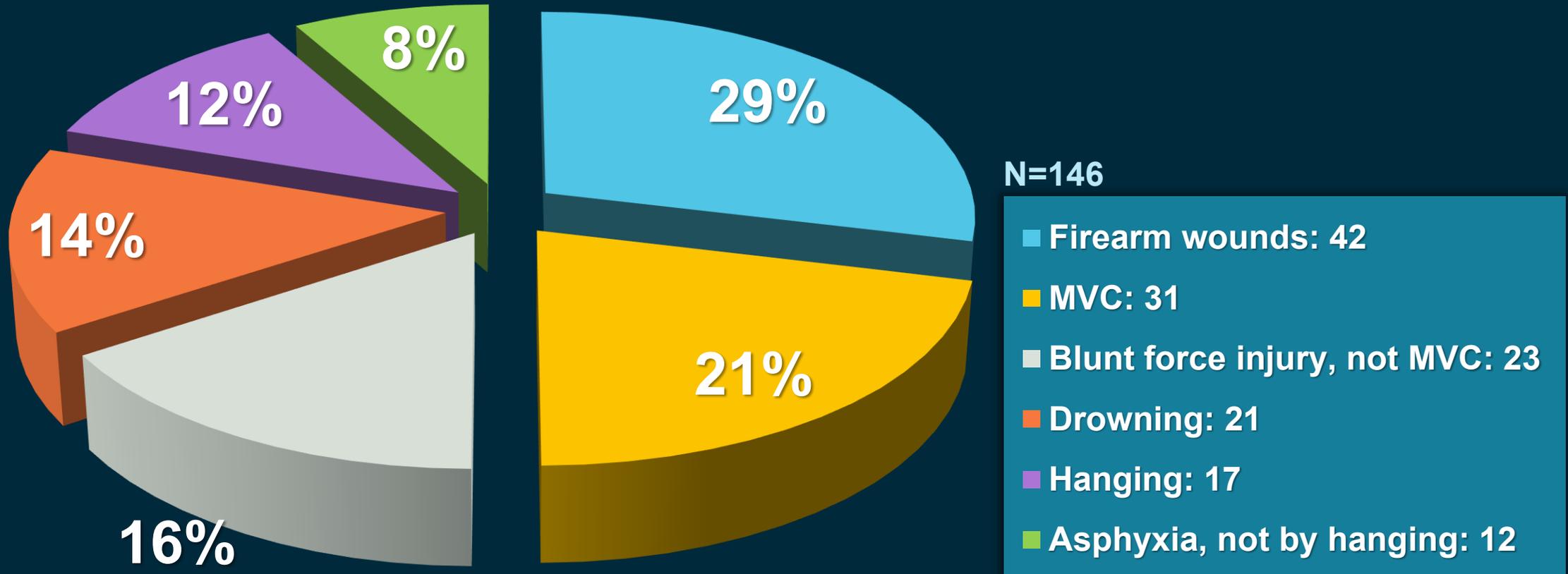
- **6** toddlers died in MVCs as passengers
- **11** toddlers drowned in accidents
- **12** homicide cases
 - 5 males
 - 7 females



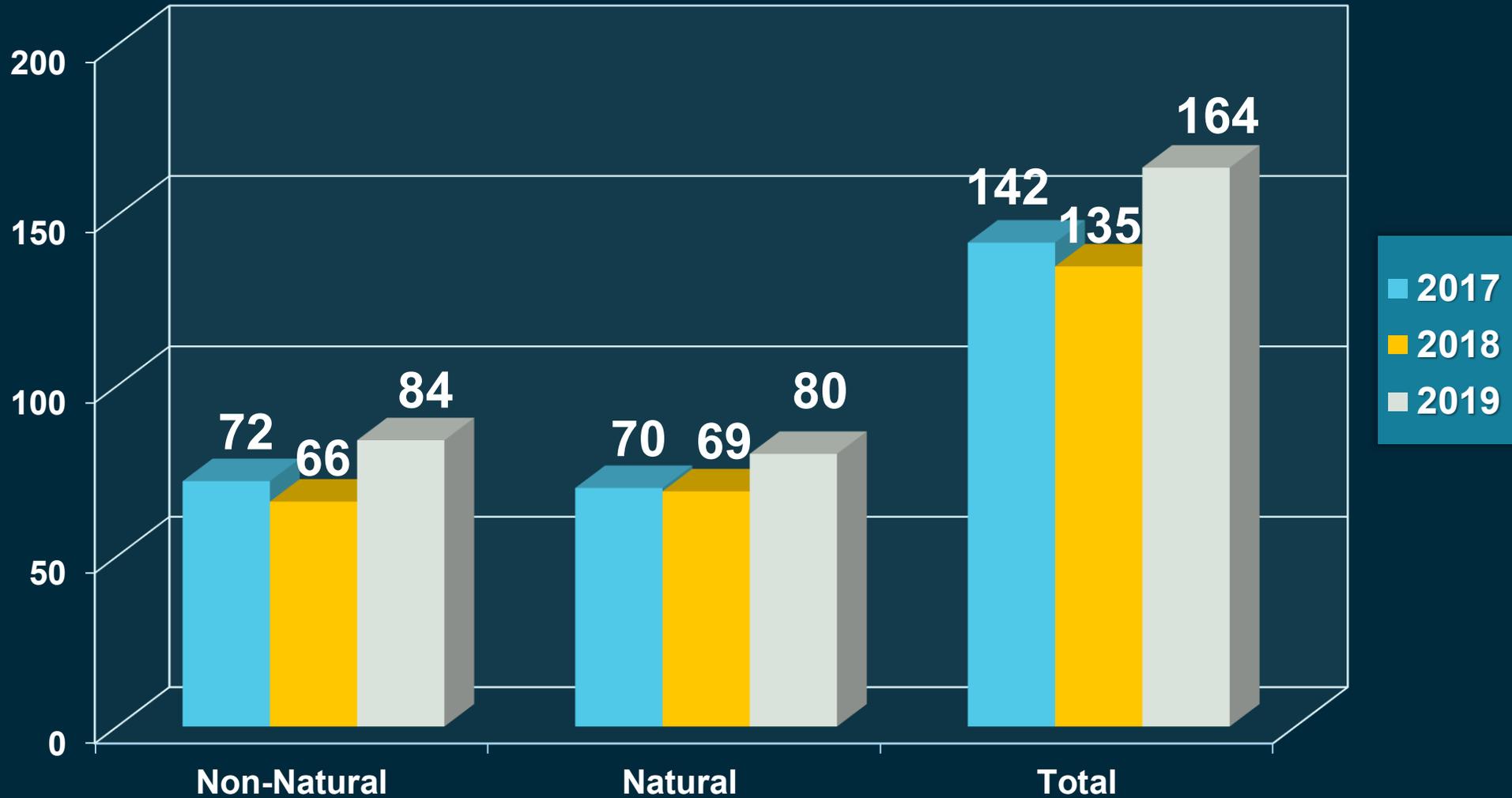
Manner of Death in Children (Age 0 - 17 Years)



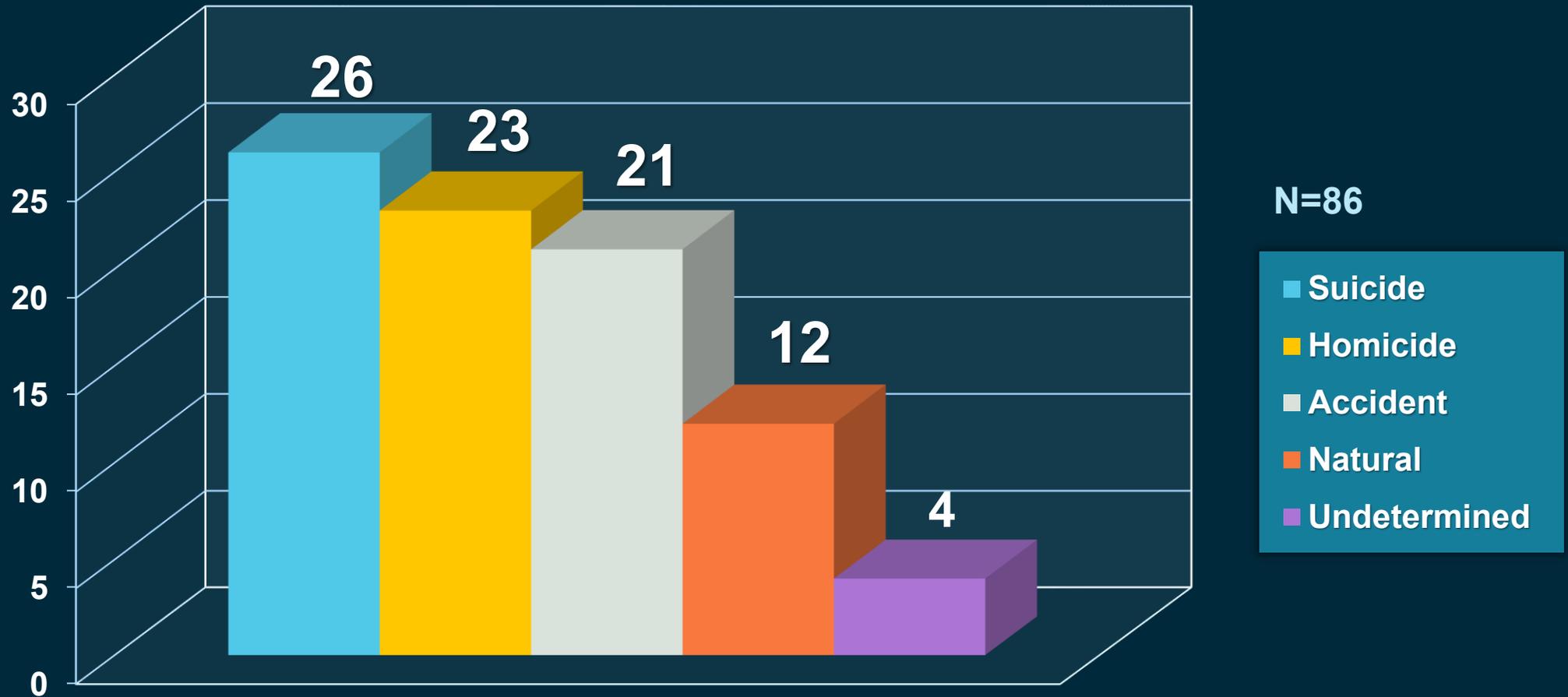
Causes of Death in Children (Age 0 - 17 Years)



“While at Work” Deaths



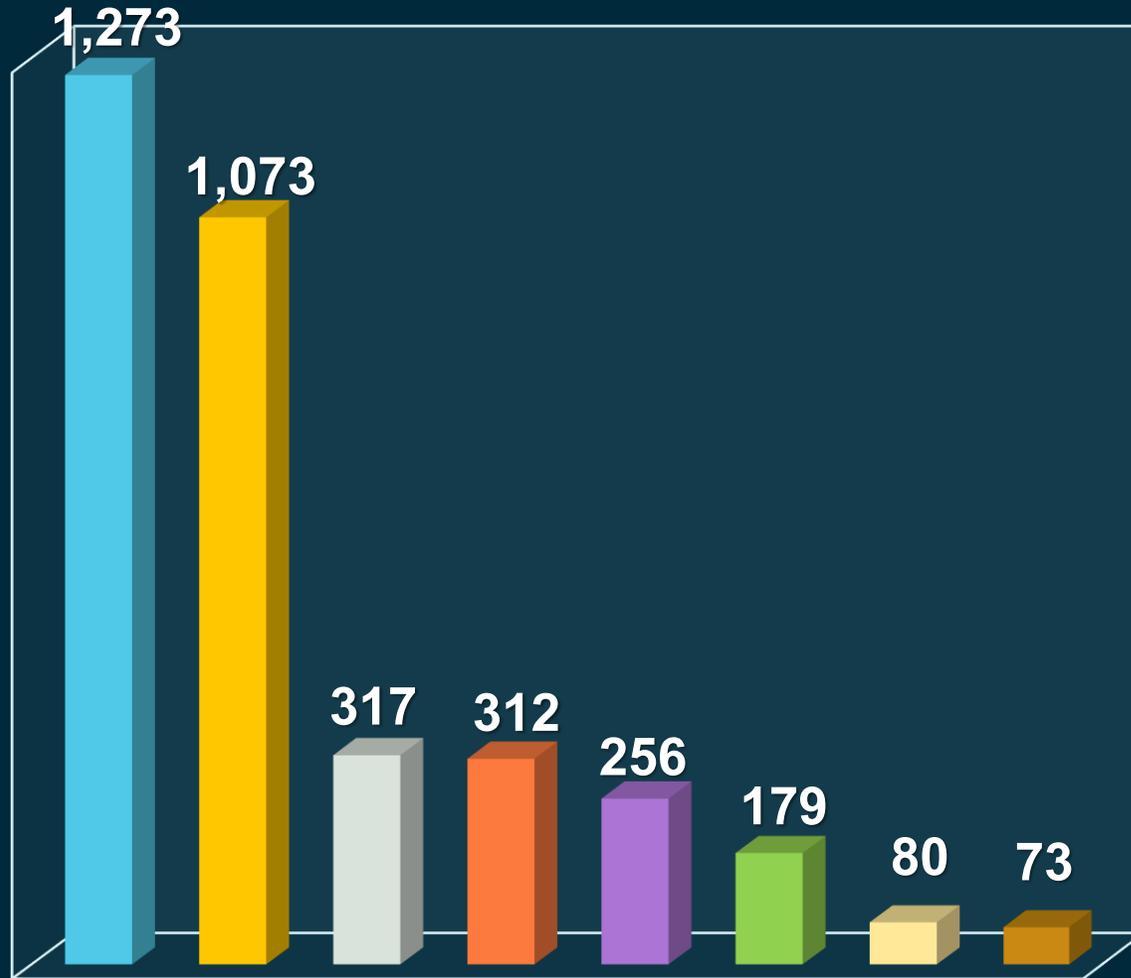
Deaths During Police Intervention*



* These include deaths in which the circumstances of the death place the decedent in either direct or indirect contact with law enforcement, such as incarceration, apprehension, and pursuit. This category of death is not limited to police shootings, arrest-related deaths, apprehension deaths, or in-custody deaths.



Most Frequent Causes of Natural Death



1,843 Natural Deaths in 2019

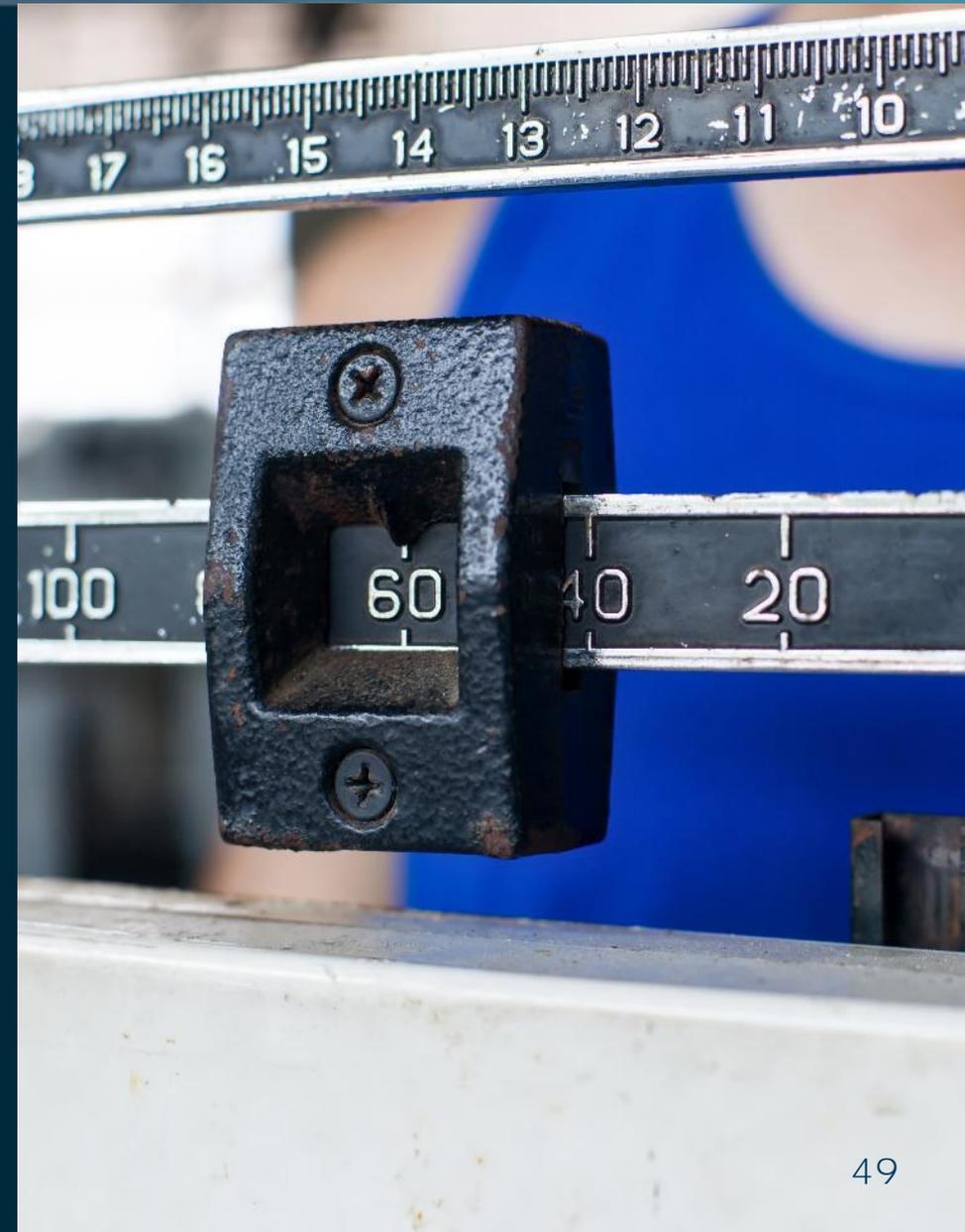
- Hypertensive Cardiovascular
- Atherosclerotic Cardiovascular
- Obesity
- Diabetes Mellitus
- Chronic Ethanolism
- Chronic Obstructive Pulmonary Disease
- Pulmonary Thromboemboli/Embolus
- Other forms of cardiac death

These data do not reflect discrete cases because diseases may be combined within a case.



Diabetes and Obesity

- For **340** decedents, diabetes mellitus was listed in the primary cause (**73**) or the contributing cause (**267**) of death
 - **69%** were either overweight or obese (*Body Mass Index, BMI = 25+*)
- BMI was calculated for **4,248** decedents age 13 years or older, at least 60" tall and weighing at least 100 pounds:
 - **1,315** (31%) were obese with a BMI of 30 or greater
 - **1,182** (28%) were overweight with a BMI between 25 and 29
 - The greatest BMI was **88** (512 lbs./64 inches tall)
 - **33** decedents weighed more than 400 lbs.
 - **1,751** (41%) decedents were of normal weight or underweight



Organ and Tissue Donation Summary

- HCIFS maintains agreements with:
 - LifeGift
 - Lions Eye Bank of Texas at Baylor College of Medicine
 - Biograft Transplant Services
- **340** ML cases were released in 2019 for organ and/or tissue donation



LIFE GIFT



Forensic Anthropology

- Staffed by **four** doctoral-level forensic anthropologists; three Diplomates of the American Board of Forensic Anthropology and one Research Fellow
- 2019 casework:
 - **365** total cases received with written reports provided
 - **136** trauma cases analyzed
 - **35** death scenes with skeletal recovery
 - **44** cases of remains determined to be non-human



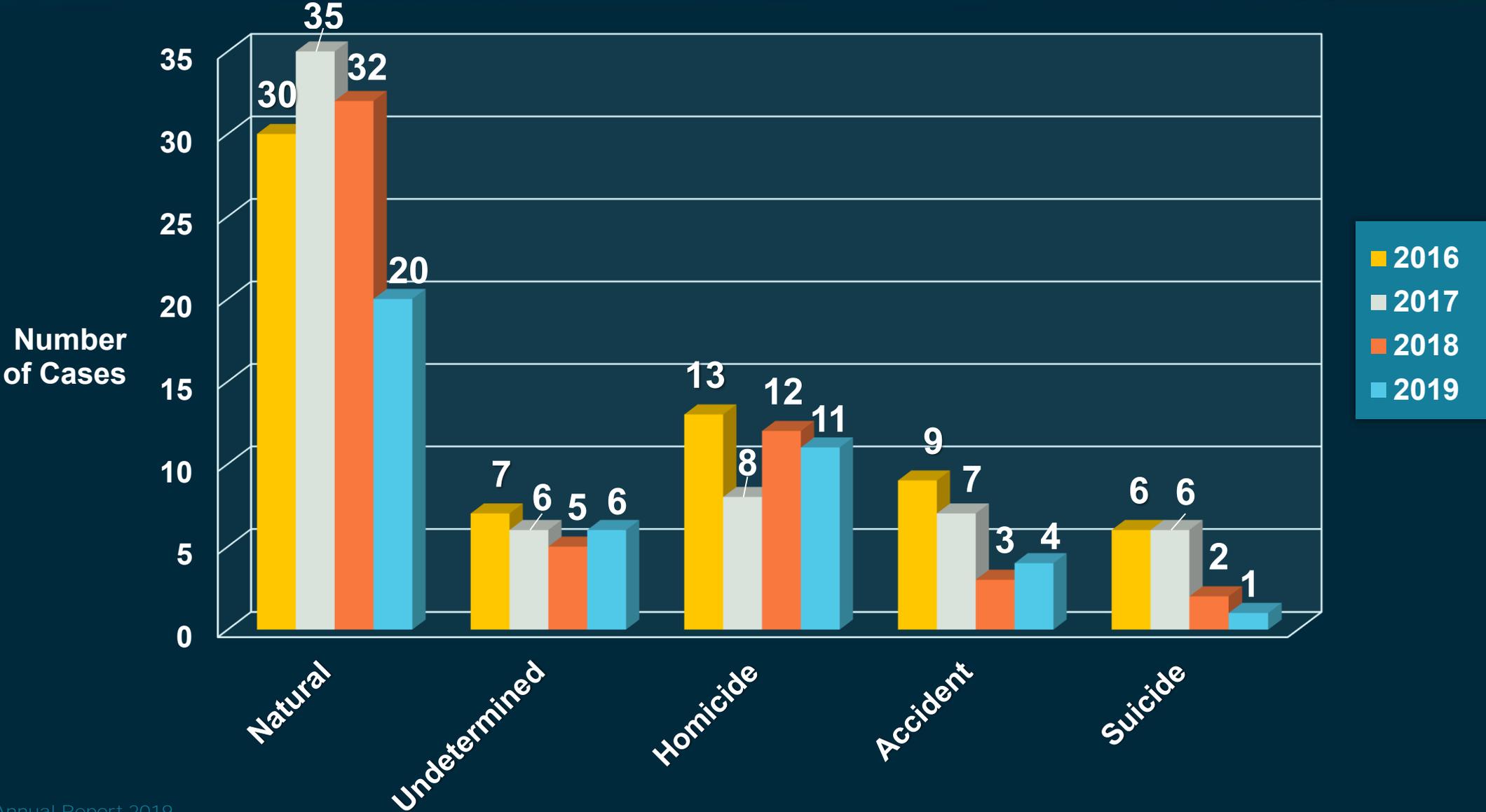
Forensic Entomology

- **Staffed by a board-certified, doctoral-level Forensic Entomologist**
 - Reports are peer-reviewed by external doctoral-level entomologists from three major academic institutions

- **2019 Casework:**
 - **42** Cases
 - **24** Scene Collections
 - **5** Autopsy Collections
 - **1** Scene and Autopsy Collection



Forensic Entomology by Manner of Death



Quality Management Division

A separate division of HCIFS

Ensures that services provided by the Institute are **reliable** and of **high quality**



Responsibilities

- Maintains a **documented quality management system** that meets all accreditation and county requirements
- Facilitates **quality improvements** within each division of HCIFS
- Monitors the **continued use of best practices** and ensures the reliability of records released for discovery



2019 Accomplishments

- **381** standard operating procedures reviewed
- **232** proficiency tests administered
- **476** court orders processed
- **13** internal audits conducted
- **106** internal training sessions provided



Crime Laboratory Service

Provides **analytical testing services** to the HCIFS Medical Examiner Service, the justice system, and law enforcement agencies in Harris and surrounding counties



Statistical Summary

- Cases received: **21,297**
- Cases completed: **21,377**
- Total Number of submitting agencies: **85**
- **63%** of laboratory personnel have a professional certification
 - American Board of Criminalistics: **51** analysts
 - American Board of Forensic Toxicology: **14** analysts
 - Association of Firearm and Tool Mark Examiners: **5** examiners



Crime Laboratory Service: Drug Chemistry

**Analyzes suspected drug evidence
seized by law enforcement agencies**

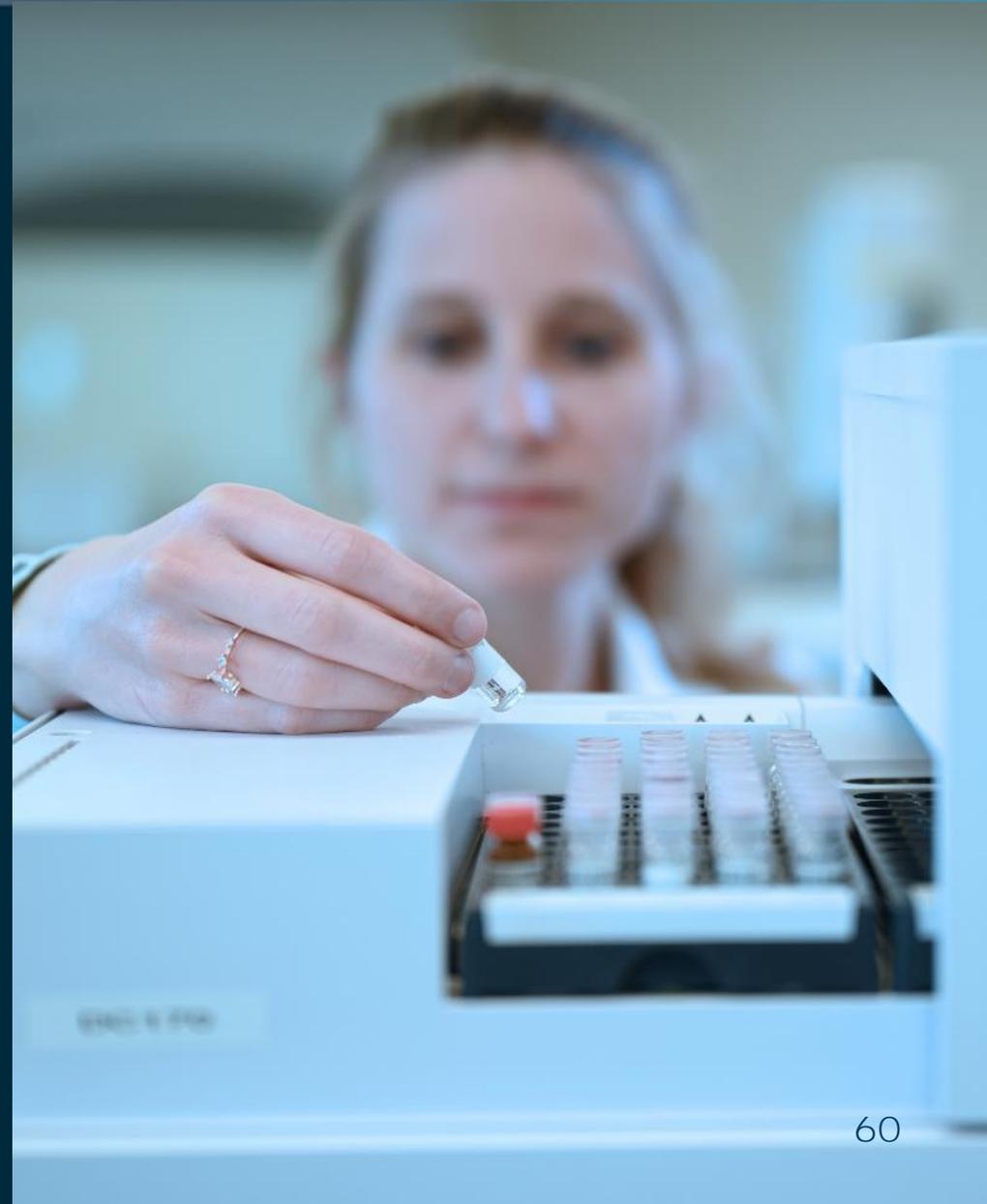
Drug Chemistry Laboratory

In accordance with Texas state statutes, identifies **confiscated, illegal, and dangerous drugs**, including:

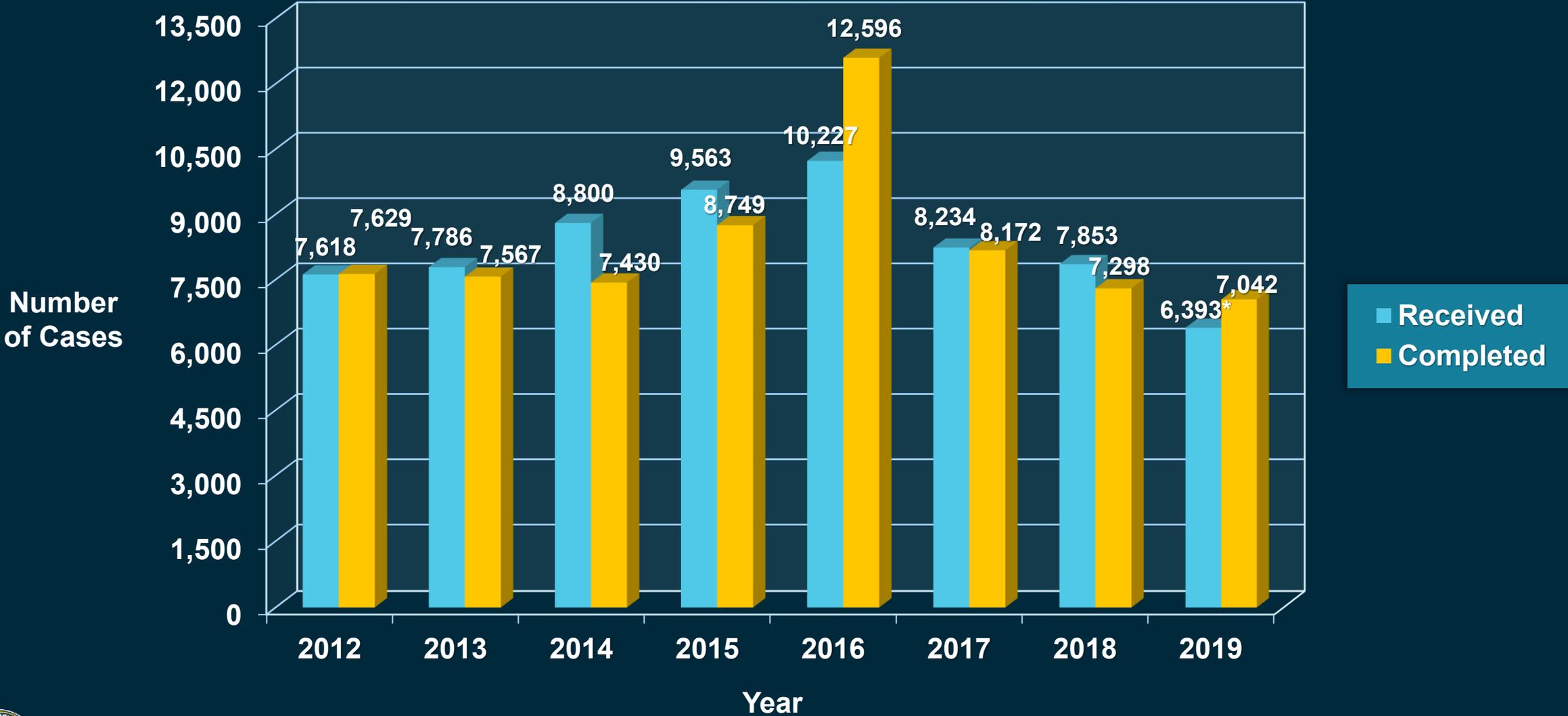
- Plant material
- Powders, tablets, liquids
- Drug paraphernalia

The laboratory also develops and implements methods to **identify new “designer” drugs** including:

- Stimulants known as “Bath Salts”
- Synthetic cannabinoids such as “Spice” or “K2”
- NBOMe hallucinogens

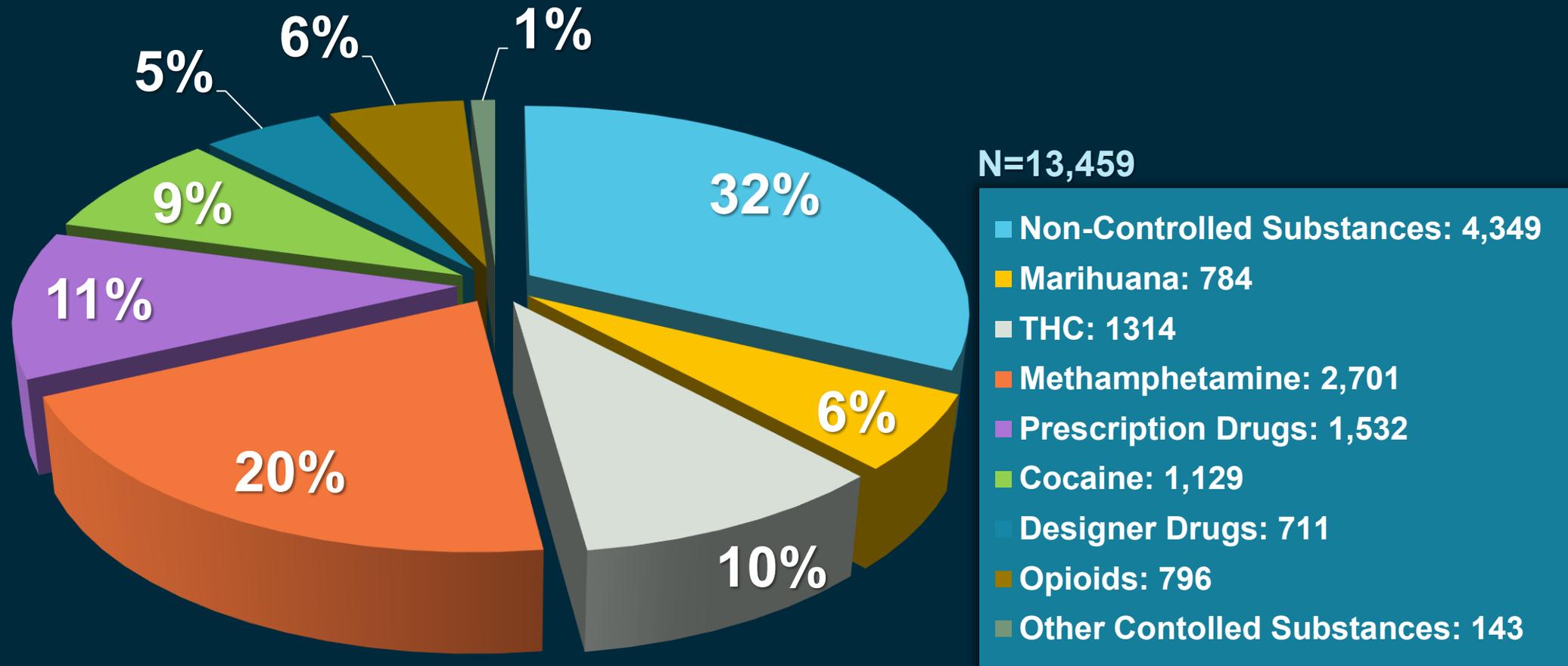


Drug Cases Received and Completed

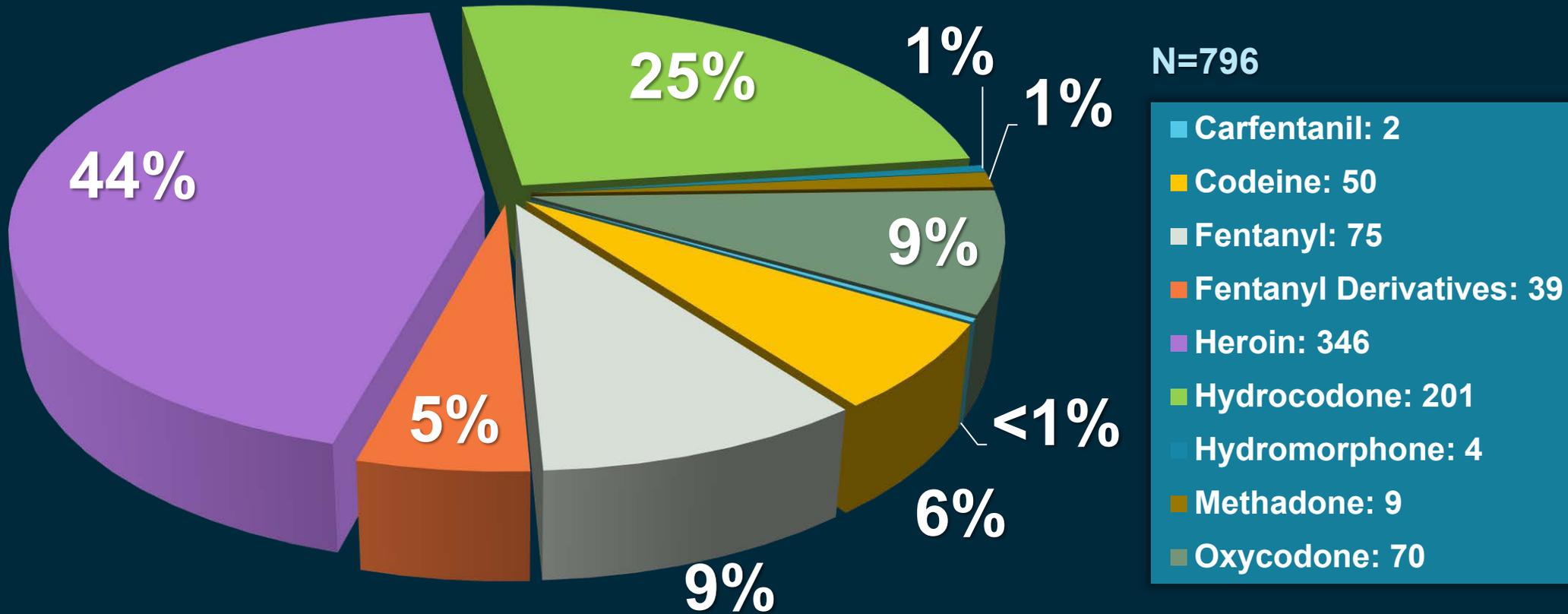


** Compared to 2018, this is a 22% decrease in cases received. The downward trend since 2016 is due to new case acceptance policies and reduced submissions of marijuana cases.*

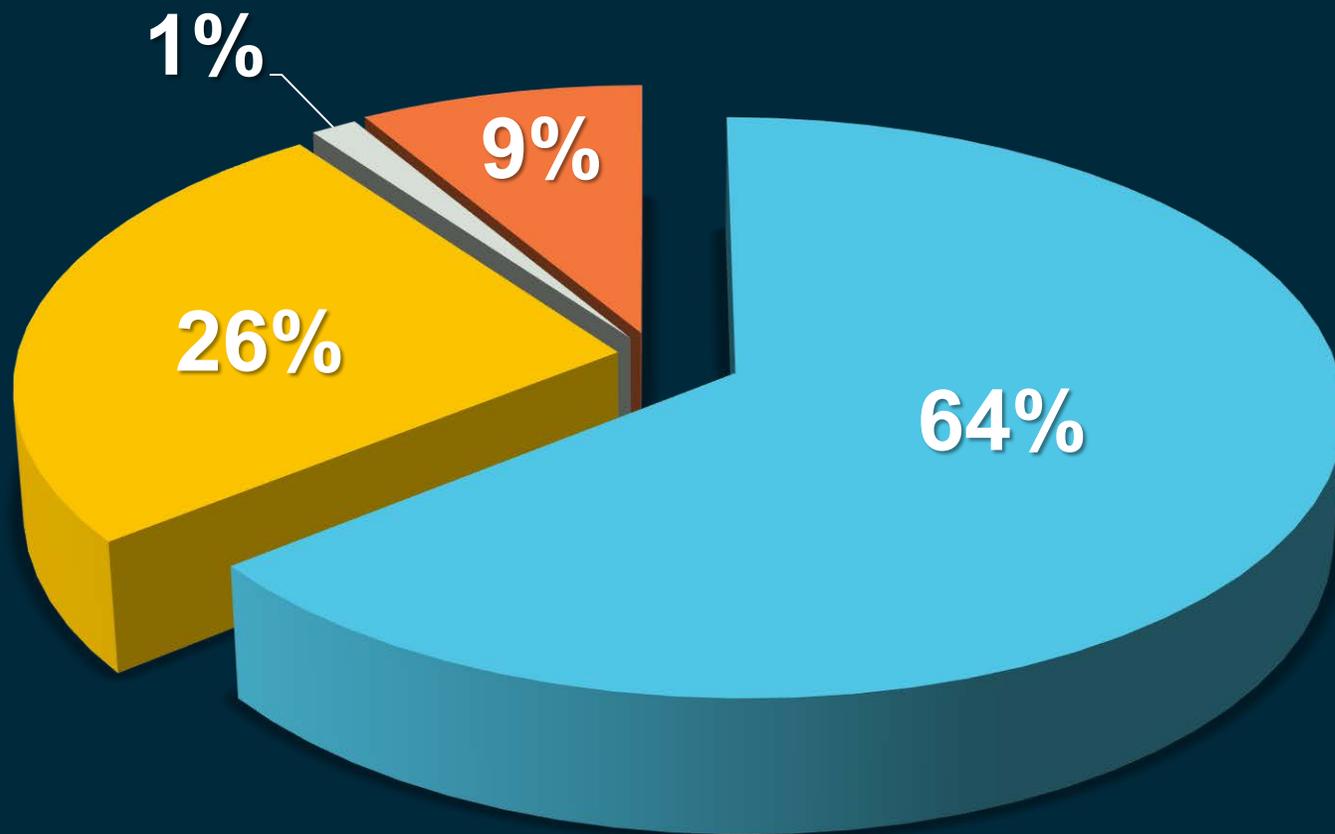
Positive Test Results



Opioid Test Results



Designer Drug Test Results



N=711

- Synthetic Marihuana: 457
- Bath Salts: 183
- NBOMe / NBOH: 10
- Other: 61

These data do not reflect discrete cases because drugs may be combined within a case.



Crime Laboratory Service: Forensic Genetics

**Analyzes biological fluids and tissues
such as blood, semen, muscle, and bone**

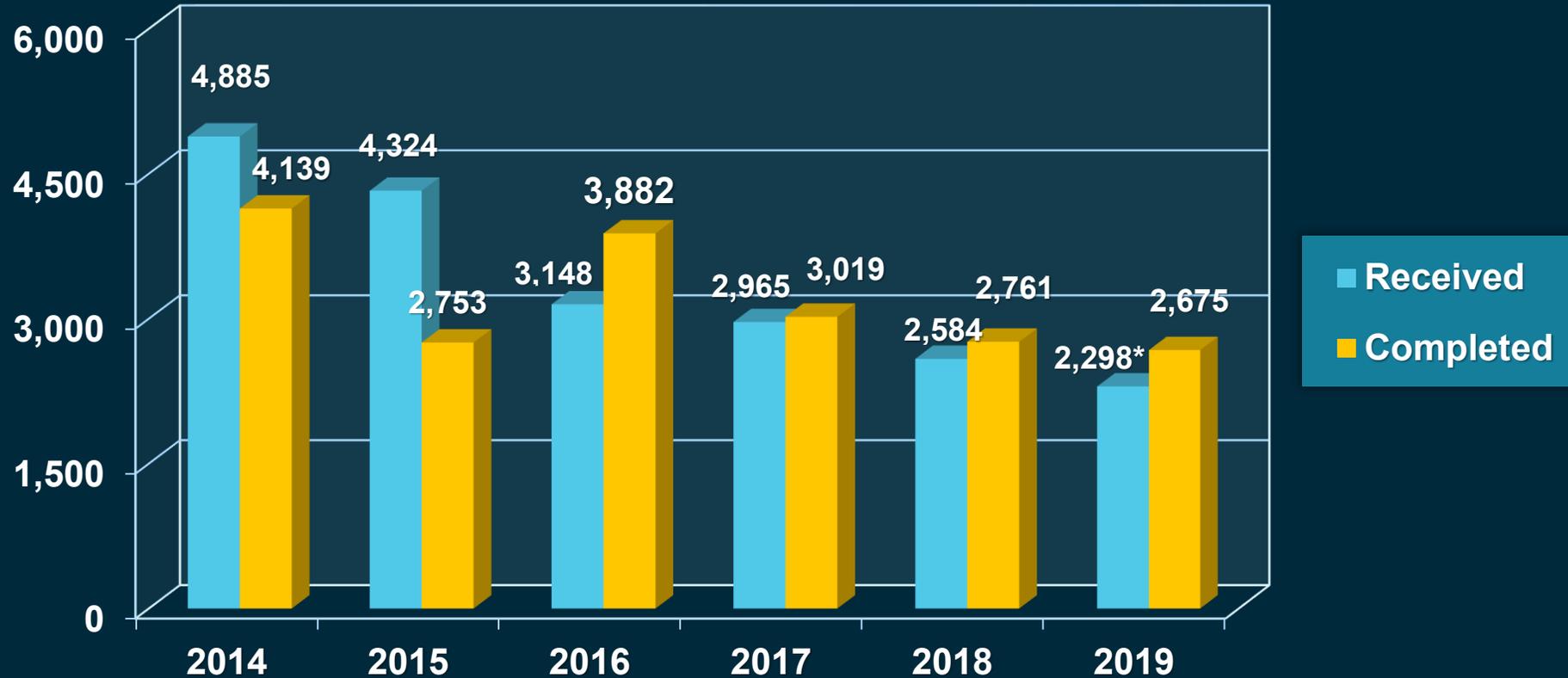
Forensic Genetics Laboratory

Conducts DNA testing primarily for:

- Law enforcement agencies
- HCIFS medical examiners and forensic anthropologists to assist in positively identifying decedents
- Cases submitted for **DNA** testing include crimes against persons such as sexual assault, homicide, and robbery as well as property crimes such as burglary and theft
- Crimes against persons are given **first priority** for testing



Cases Received and Completed

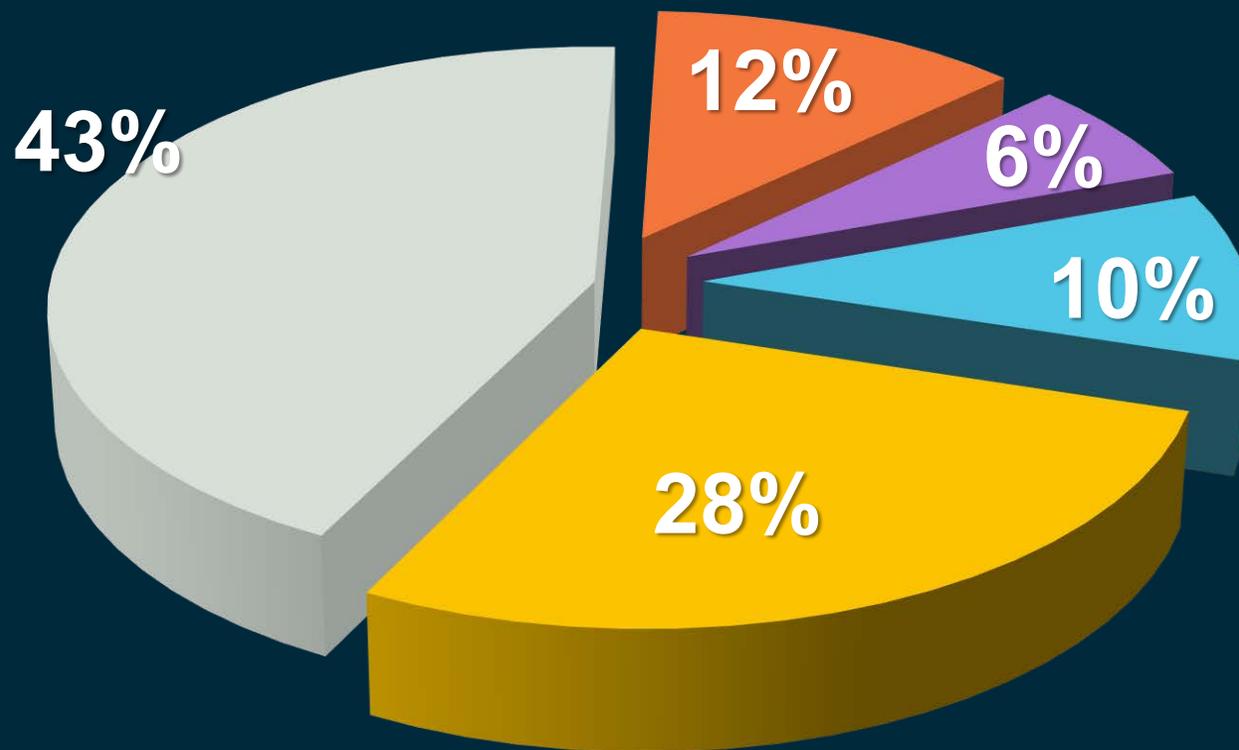


The laboratory paused the collection and analysis of touch DNA property crimes in July 2015 to focus on crimes against persons, which typically require more testing and more complex interpretations.

Increasing DNA testing of crimes against persons decreases the number of cases the lab can complete.



Case Submissions by Type



N=2,298

■ Property: 238

■ Sexual Assault: 991

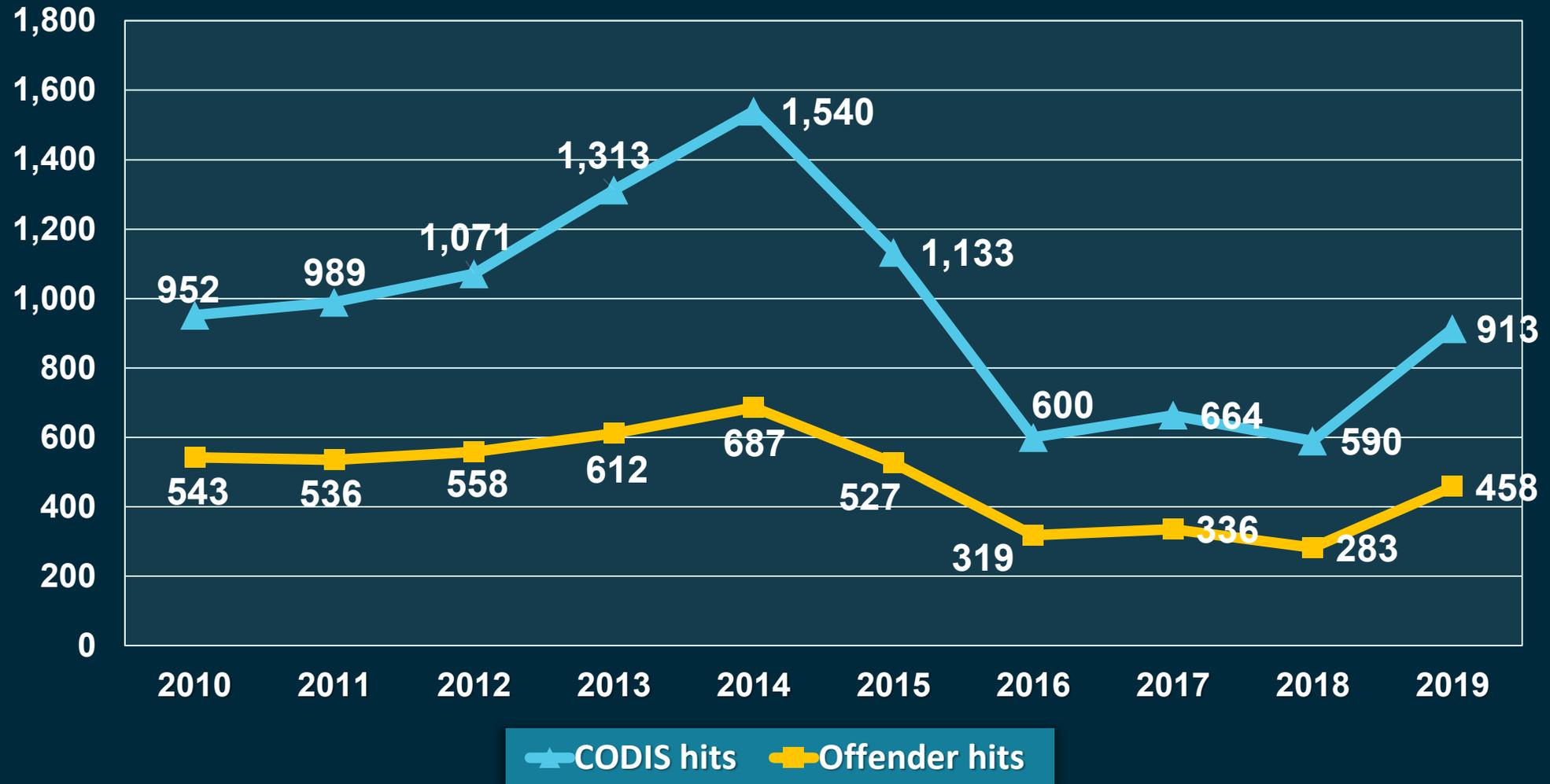
■ Other: 148

■ Assault/Robbery: 637

■ Homicide/Death Investigation: 284



CODIS Hits



Trace Evidence DNA Collection Team

Specialized DNA analysts who attend select death scenes to **collect DNA and trace evidence** from bodies that have been:

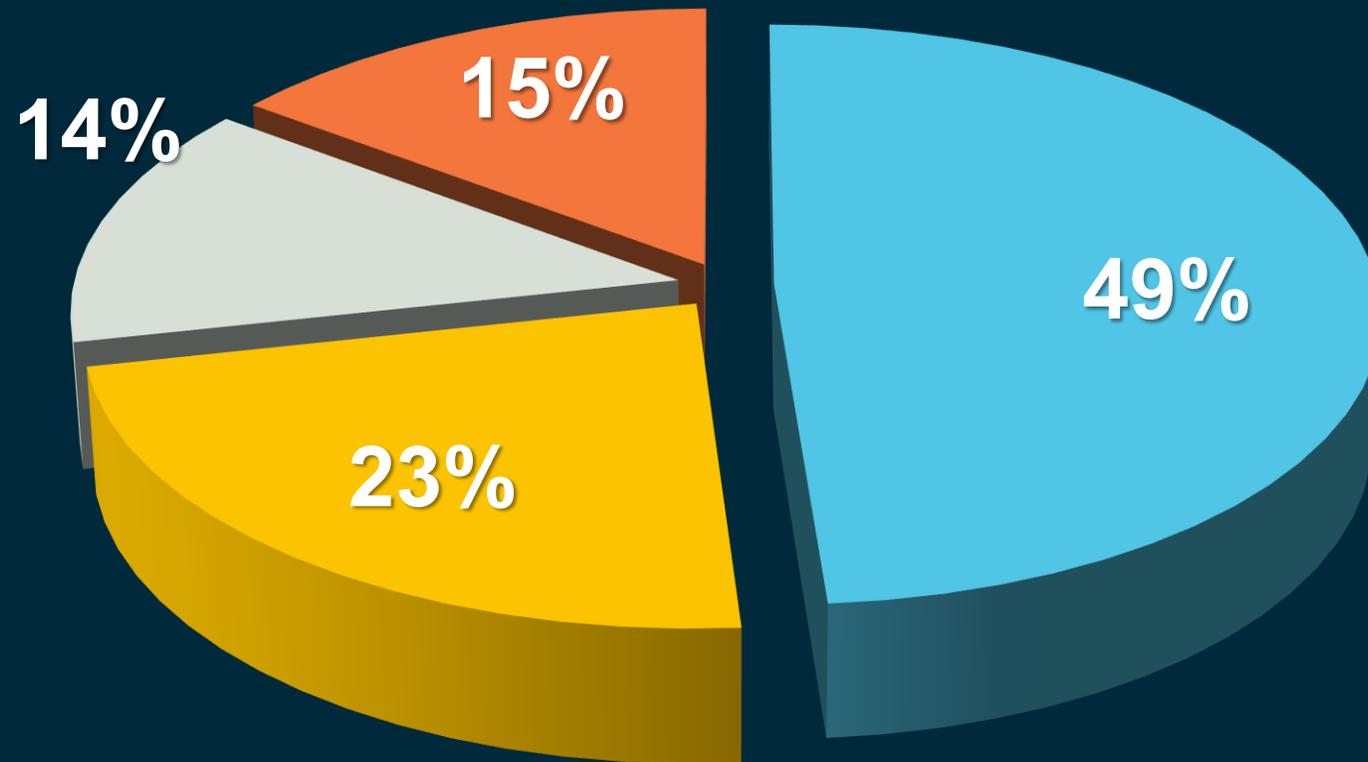
- Dumped
- Bound
- Thought to have been in close contact with the perpetrator

The team has had a number of **successes obtaining DNA** different from that of the victim

This information assists investigators in **solving crimes**



Trace DNA Collection: Homicide Cases by Cause of Death



88 collections
in 2019

75% (66) of the Trace
DNA Collection Cases
were Homicides

N= 88

- GSW: 43
- Blunt or Sharp: 20
- Accidental: 12
- Other*: 13



Crime Laboratory Service:

Forensic Toxicology

Provides analytical services in medicolegal death investigations, driving while impaired (human performance alcohol and drug testing), and drug-facilitated sexual assault investigations

Forensic Toxicology Laboratory

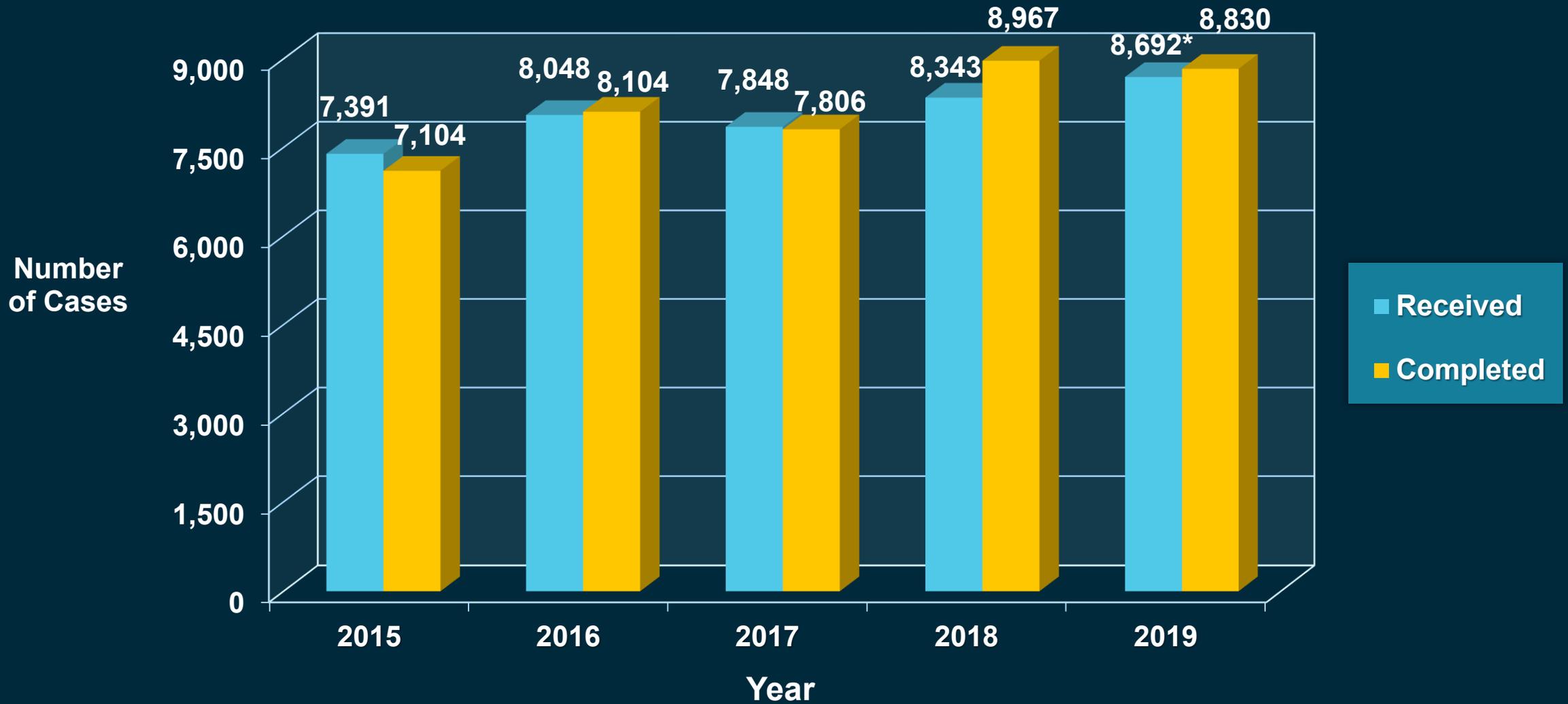
Analyzes **biological evidence** submitted by the HCIFS Medical Examiner Service and law enforcement agencies in Harris County for:

- Death investigations
- Driving while impaired (DWI) and driving under the influence (DUI) cases
- Drug-facilitated sexual assaults
- Other criminal investigations

The only forensic toxicology laboratory in Texas **dually accredited** by the ANSI National Accreditation Board and the American Board of Forensic Toxicology



Cases Received and Completed

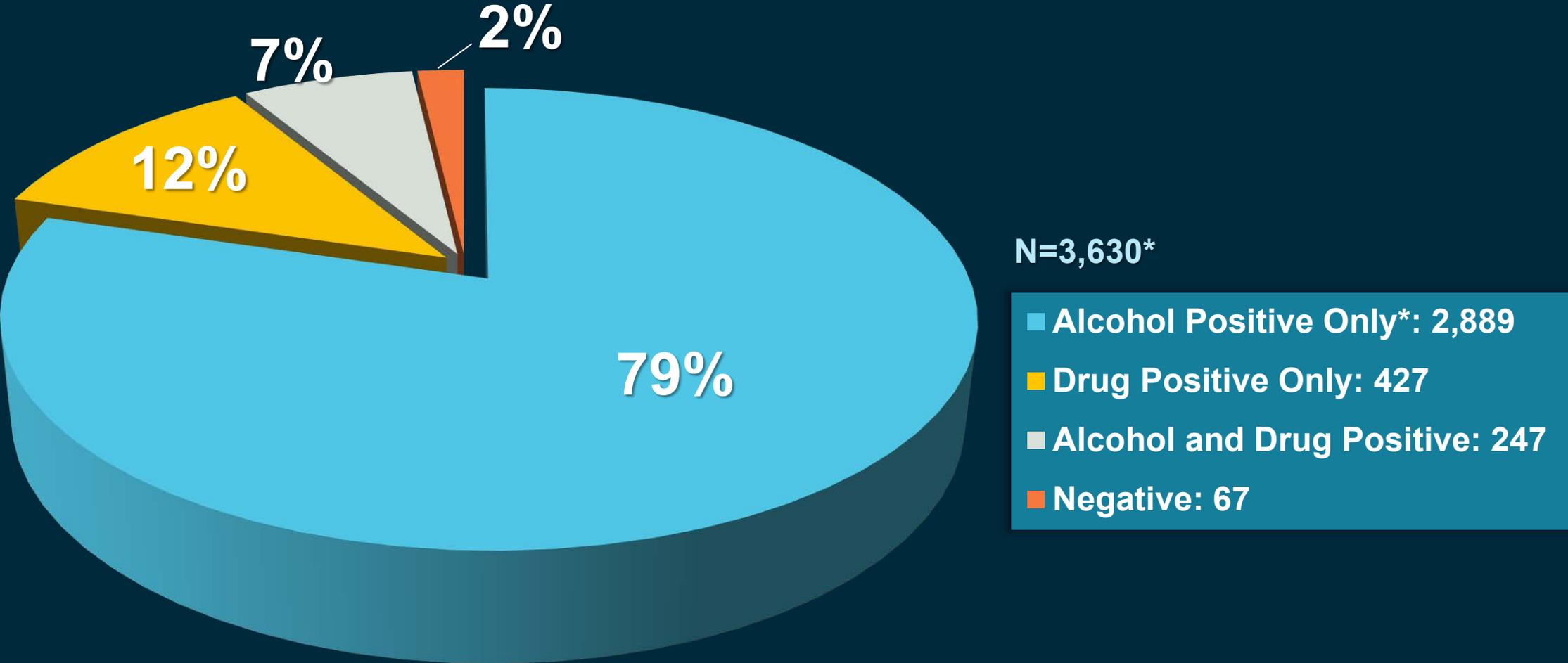


Cases Received by Type



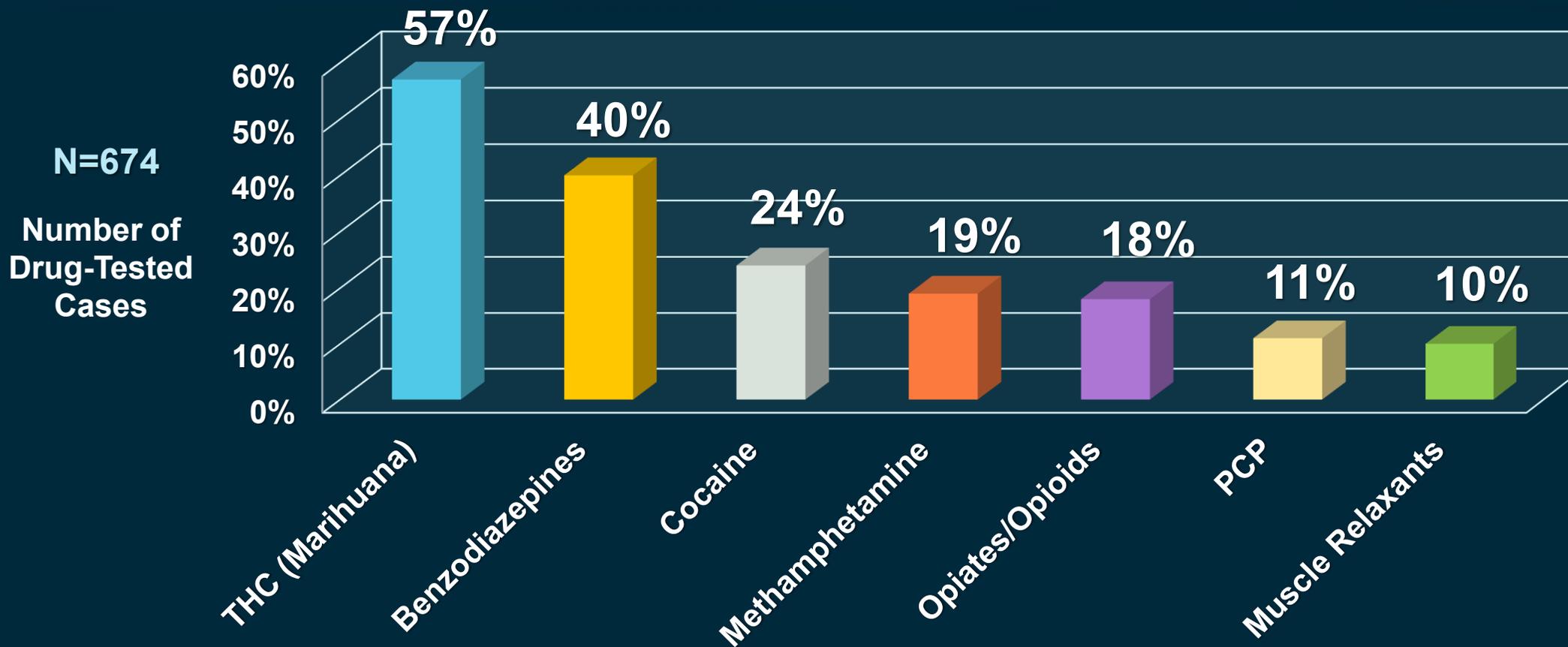
* Compared to 2018, this is a **10%** increase in cases received for DWI/DUID.

DWI Case Results



*Alcohol Positive Only is a case with the presence of ethanol but no drugs.

Drug Prevalence in DWI Cases



True prevalence may be underrepresented as one case could have multiple drugs from a single drug class, e.g., opiates or benzodiazepines.

Other identified drug classes include: anti-seizure medicines, over-the-counter cough and cold medicines, and anti-depressants.



Crime Laboratory Service:

Physical Evidence

Evaluates fired cartridge casings and bullets recovered from crime scenes and firearms involved in violent, gun-related incidents

Analysis in the three forensic sub-disciplines of Gunshot Residue Analysis, Fire Debris Analysis, and Automotive Paint Analysis

Firearms Identification Laboratory

- Conducts examinations of evidence related to investigations of **gun-related offenses**
- Cases received are comprised of **weapons, bullets** and **cartridge casings**
- Serves as a **regional facility** for the National Integrated Ballistics Information Network database

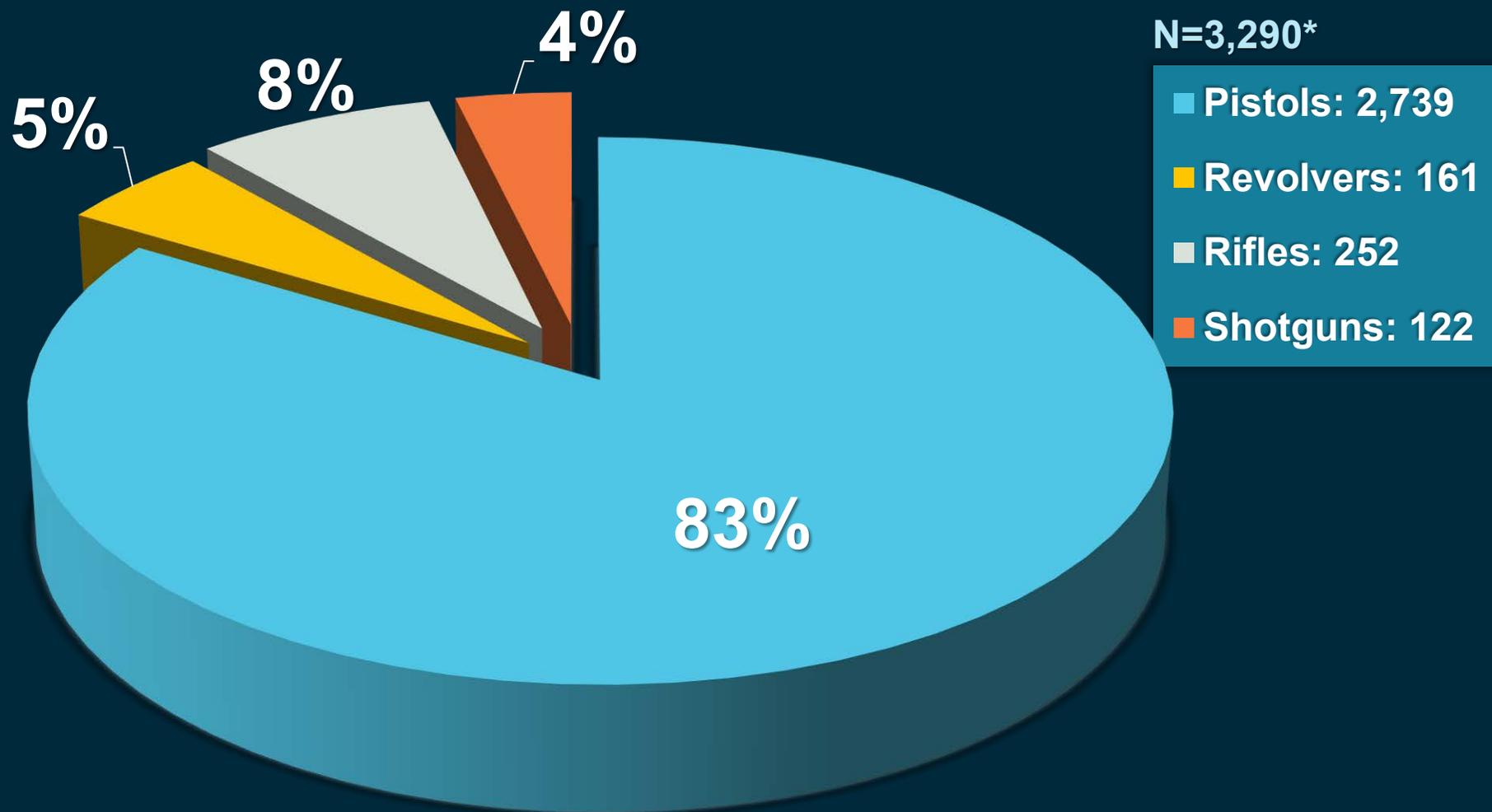


Firearms Identification Casework



* Compared to 2018, this is a 3% increase in cases received.

Firearms Cases by Type



* There are 16 cases with other types of firearms such as air gun, BB gun, and Derringer.

** Eight guns with no identifiers were received.

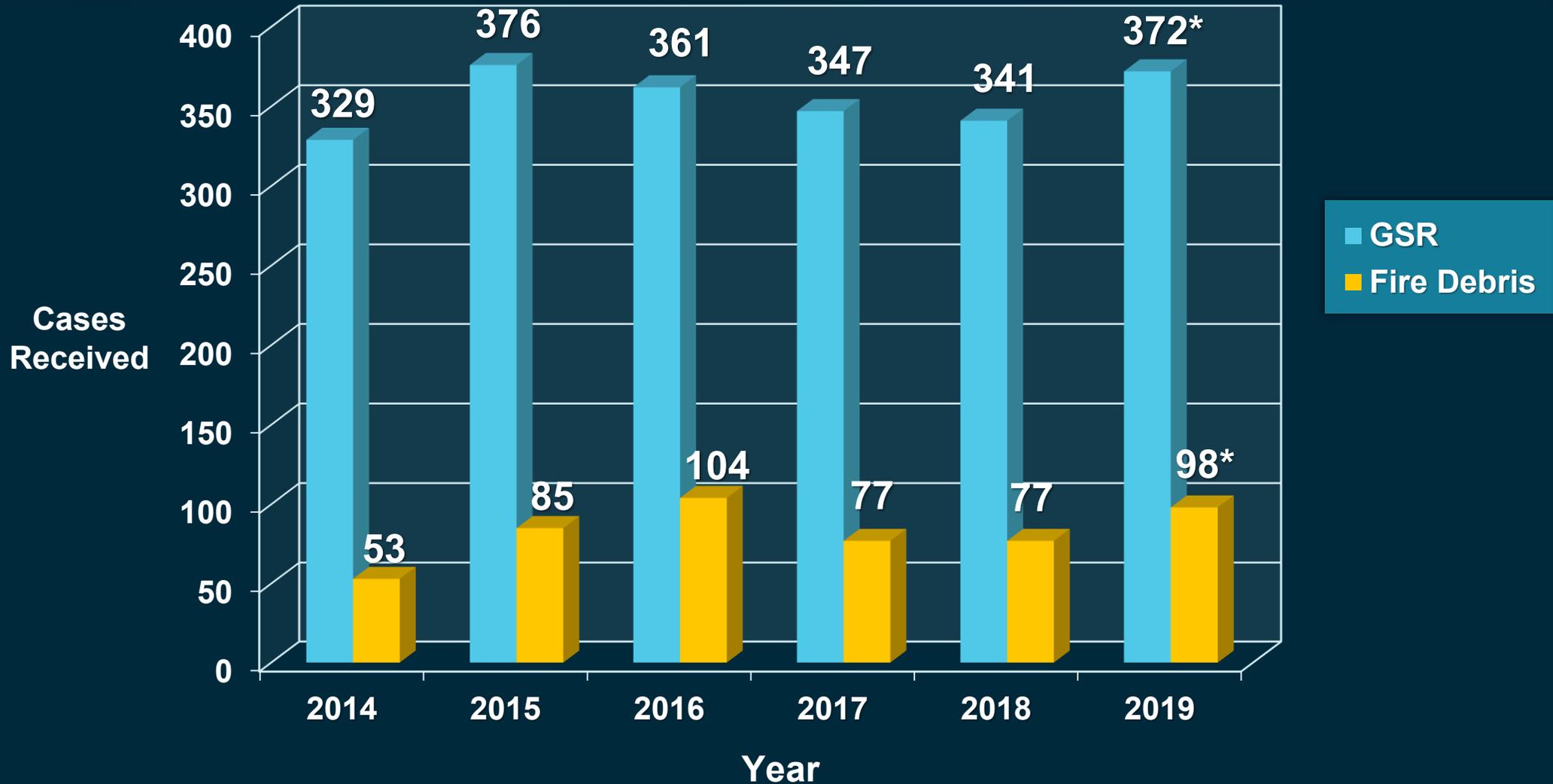
Trace Evidence

Provides analytical support to the HCIFS Medical Examiner Service and law enforcement in three areas:

- **Fire Debris Analysis**
 - Examines evidence from fires to assist investigators in determining the presence of ignitable liquid residues
- **Gunshot Residue (GSR) Analysis**
 - Assists in determining whether a person or object has an association with the discharge of a firearm
- **Automotive Paint Analysis**
 - Supports law enforcement investigation into injurious failure to stop and render aid (hit-and-run) incidents



Trace Evidence Casework



* Compared to 2018, this is a **10%** increase in cases received for GSR and a **27%** increase for fire debris.

** **18** paint analysis cases were received in 2019, a **20%** increase compared to 2018.

(Paint analysis was a new category of testing introduced by the Trace Evidence Lab in late 2017.)





Published Scientific Work

10 published articles in peer-reviewed journals

Publications by HCIFS Doctors and Scientists

	Title	Authors	Publication
1	The Infant Injury Database: A Tool for the Study of Injury Patterns in Medicolegal Investigations of Child Abuse	Soto Martinez, ME, Love, JC, Pinto, DC, Wiersema, JM, Derrick, SM, Bachim, A, Greeley, C, Donaruma-Kwoh, M, Truong, VTT, Gao, S, and Crowder, CM.	<i>J Forensic Sci.</i> doi:10.1111/1566-4029-14120. Epub 2019 July 2.
2	Establishing a Regional Pediatric Trauma Preventable/Potentially Preventable Death Rate	Drake, S.A., Holcomb, J.B., Yang, Y., Thetford, C., Myers, L., Brock, M., Wolf, D.A., Persse, D., Naik-Mathuria, B.J., Wade, C.E., and Harting, M.T.	<i>Pediatric Surgery International</i> (2019) in press; doi: 10.1007/s00383-019-04597-9.
3	Elevator-Related Deaths	Prahlow, J.A., Ashraf, Z., Plaza, N., Rogers, C., Ferreira, P., Fowler, D.R., Blessing, M.M., Wolf, D.A., Graham, M.A., Sandberg, K., Brown, T.T., and Lantz, P.E.	<i>Journal of Forensic Sciences</i> (2019) in press.
4	Individual and Community Characteristics Associated with Premature Natural and Drug-Related Deaths in 25-59 Year-Old Individuals	Drake, S.A., Yang, Y., Wolf, D.A., Reynolds, T., Harper, S., Hudson, A., and Meininger, J.C.	(2019) PLoS ONE 14(2):e0212026. PMID: 30811443
5	A Descriptive and Geospatial Analysis of Environmental Factors Attributing to Sudden Unexpected Infant Death	Drake, S.A., Wolf, D.A., Yang, Y., Harper, S., Ross, J., Reynolds, T., and Giardino, E.	<i>American Journal of Forensic Medicine and Pathology</i> (2019) 40(2):108-116. PMID: 30570520
6	Commentary on: Rubin KM, Stock MK. Early Signs of Fracture Repair in the Human Rib Cage: Implications for Forensic Casework	Pinto, DC, Fleischman, JM, and Crowder, CM.	<i>Journal of Forensic Sciences</i> 64(3):672–9.
7	Reply to Authors' Response. Commentary on: Rubin KM, Stock MK. Early Signs of Fracture Repair in the Human Rib Cage: Implications for Forensic Casework	Pinto, DC, Fleischman, JM, and Crowder CM.	<i>Journal of Forensic Sciences</i> 64(5):1590-1592.
8	Analysis of Skeletal Demographics and Traumatic Injuries from the Khmer Rouge–Period Mass Gravesite of Choeng Ek, Cambodia	Fleischman, JM.	<i>Forensic Anthropology</i> 2(4):347-365.
9	Transparency in Forensic Anthropology through the Implementation of Quality Assurance Practices	Fleischman, JM, Pierce, ML, and Crowder, CM.	In: Fulginiti LC, Galloway A, Hartnett-McCann K, editors. <i>Forensic Anthropology and the United States Judicial System</i> . Hoboken, NJ: Wiley, 71-88.
10	ISO Standards Addressing Issues of Bias and Impartiality in Forensic Work	Dror, IE and Pierce, ML.	<i>J Forensic Sci.</i> doi: 10.1111/1566-4029.14265.



Internship and Fellowship Programs

Internship Program

- **HCIFS prepares students for future careers in forensic science in many different scientific disciplines as well as in technical, professional, and administrative capacities.**
- **20** summer and fall interns from the following disciplines were on site in 2019:

- Histology
- Forensic Anthropology
- Emergency Management
- Forensic Investigations
- Victim's Assistance
- Drug Chemistry
- Firearms Identification
- Forensic Genetics
- Forensic Toxicology
- Trace Evidence



Medical Examiner Fellowship Programs

Forensic Pathology Fellowship:

A 1-year fellowship that is a required training program for all new pathologists seeking Forensic Pathology Board certification

Fellows focus on the data acquisition and documentation processes from medical and non-medical sources with particular emphasis placed on the correlation of scene observations (forensic investigation) with autopsy and forensic toxicological findings.



Crime Laboratory Fellowship Programs

Forensic Toxicology:

A 2-year fellowship providing training for doctorate-level scientists seeking specialization in forensic toxicology

Upon completion of the program, fellows will be familiar with toxicology laboratory methods and interpretation. Methods include immunoassay screening, sample preparation, liquid and gas chromatography with mass spectrometry, and interpretation of toxicological findings in postmortem, DWI, and drug-facilitated sexual assault cases.



Crime Laboratory Fellowship Programs

Forensic Genetics:

A 2-year program designed to train life science doctorates in casework and validation methods

Upon completion of the program, fellows will have been trained in all casework methods in exactly the same manner as a staff analyst. These methods include forensic serology, state-of-the-art DNA analysis methods, DNA interpretation, statistical analysis, and expert witness testimony.



THANK YOU!
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HARRIS COUNTY
INSTITUTE SCIENCE.
OF FORENSIC SCIENCES SERVICE.
INTEGRITY.



Image: *Shau Lin Hon/Slyworks Photography*