2018 ANNUAL REPORT

Harris County Institute of Forensic Sciences

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

- **NEW!** Lloyd's Register Quality Assurance ISO 9001:2015 Program (Quality Management)
- 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)
- National Association of Medical Examiners
- Texas Forensic Science Commission
- Texas Medical Association for Continuing Medical Education

Image: *Shau Lin Hon/Slyworks Photography*

Medical Examiner Service

Has the statutory duty to determine cause and manner of death

Statistical Summary

- **Harris County (HC) remains the third most populous county in the nation, exceeded only by Los Angeles and Cook counties**
  - **4.6+ million** estimated HC population in 2018*
  - **30,135** HC death certificates filed in 2018**
  - **35%** (10,577) of HC deaths reported to HCIFS in 2018
  - **4,554** medicolegal (ML) cases received by HCIFS for examination
  - **5,653** inquest only cases reported
  - **370** trauma inquest cases reported
  - **2,665** scenes attended by Forensic Investigators

- **4,950 deaths were certified in 2018, including:**
  - **4,554** Harris County ML cases (all brought to HCIFS for examination)
  - **370** trauma inquests
  - **26** out-of-county cases

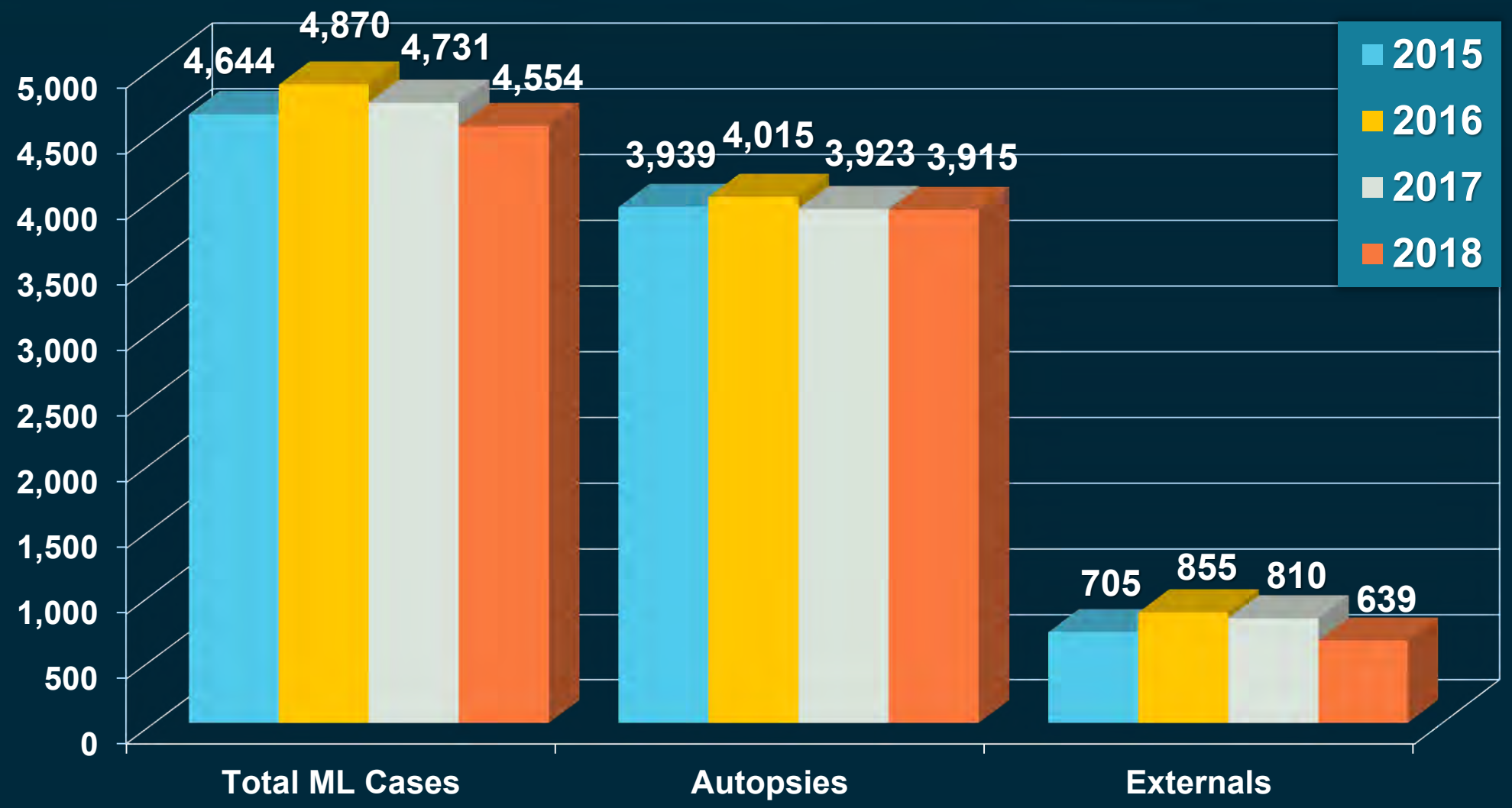
** Population estimate for 2018 obtained from the US Census Bureau*
*** Provisional Death Certificate data is from the Texas Department of State Health Services*

Statistical Summary

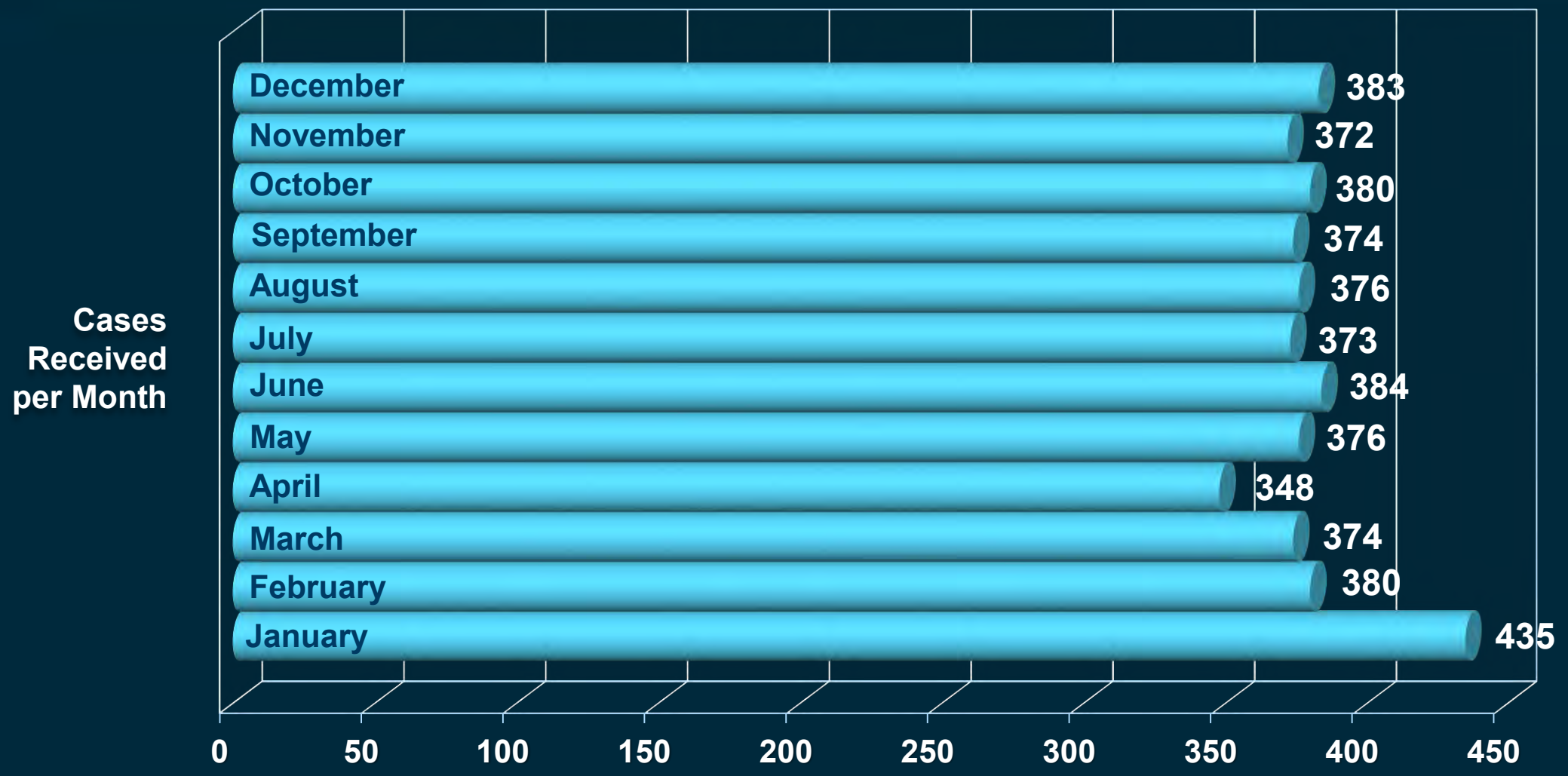
- **86% of ML cases (3,915) received a full autopsy***
  - **14%** of ML cases (**639**) received an external examination only
- **254 decedents unidentified on arrival**
  - **0** decedents remained unidentified at the end of 2018**
- **257 referrals to Harris County Bereavement Services**
- **228 formal neuropathological consults and 300 unofficial consults*****
  - **18** child abuse consults
- **No hospital autopsies retained**

** Partial autopsies are not performed by the HCIFS.*
*** Excludes skeletal cases and incomplete remains*
**** Unofficial consults include gross, photo, and microscopic consults.*

Total Caseload (2015 - 2018)



Monthly ML Caseload 2018



Average Daily Medicolegal Caseload

2018	2017	2016
12.5 cases	13.0 cases	13.4 cases

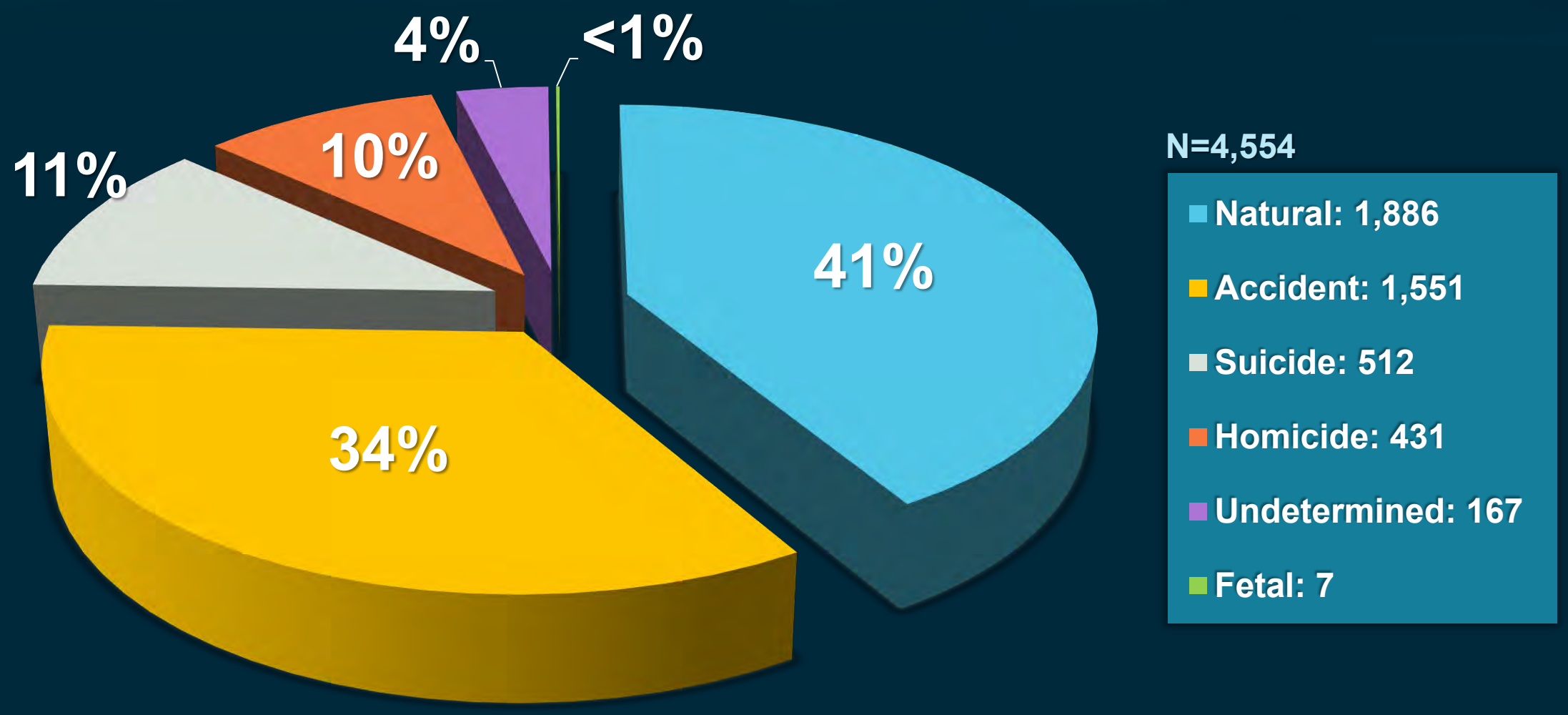
Months with HIGHEST Average Daily Caseload:

- 2018 January: 14.0 cases
- 2017 December: 14.0 cases
- 2016 July: 15.2 cases

Months with LOWEST Average Daily Caseload:

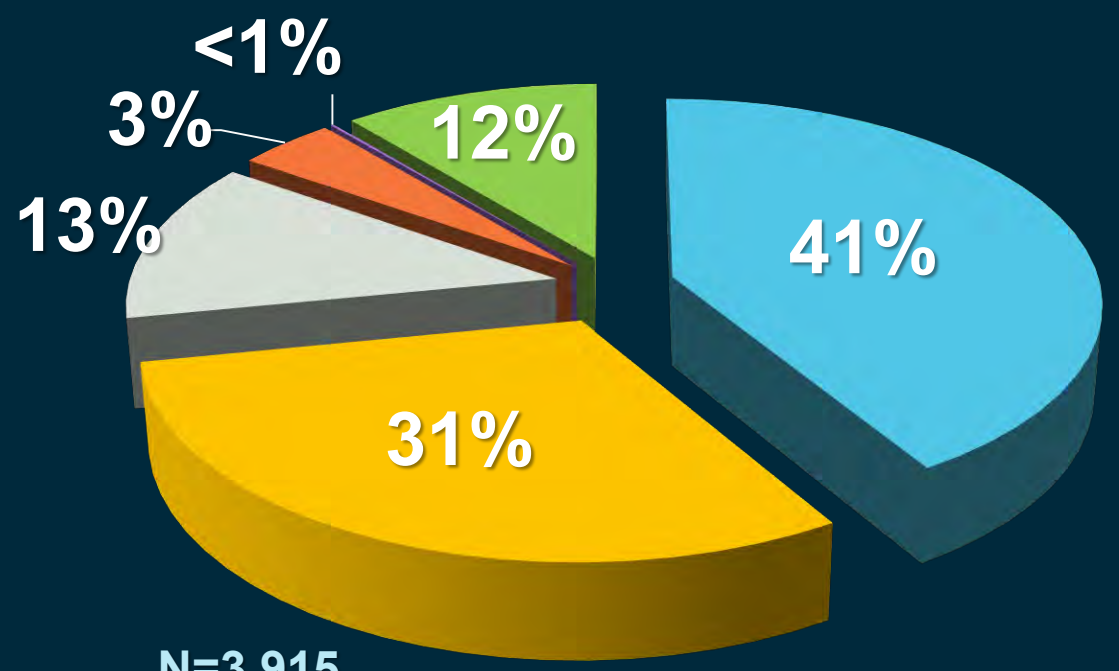
- 2018 April: 11.6 cases
- 2017 September: 11.6 cases
- 2016 October: 11.8 cases

Manner of Death – Autopsy and External Examinations



Manner of Death by Autopsy and External Examinations

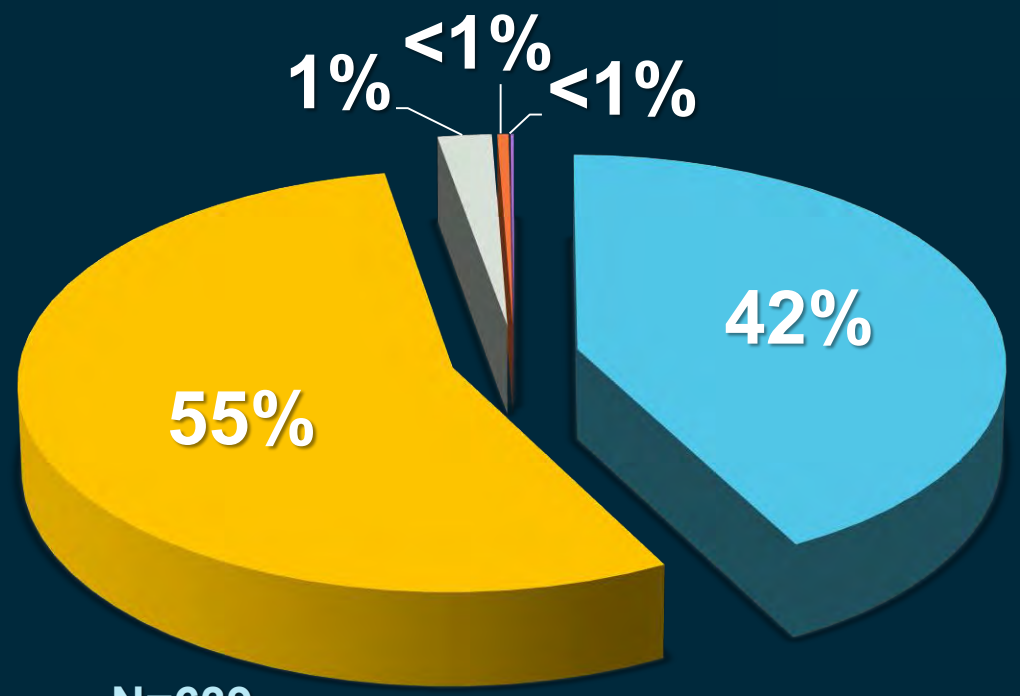
Autopsy Examinations



N=3,915

- Natural: 1,616
- Accident: 1,200
- Suicide: 498
- Undetermined: 164
- Fetal: 6
- Homicide: 431

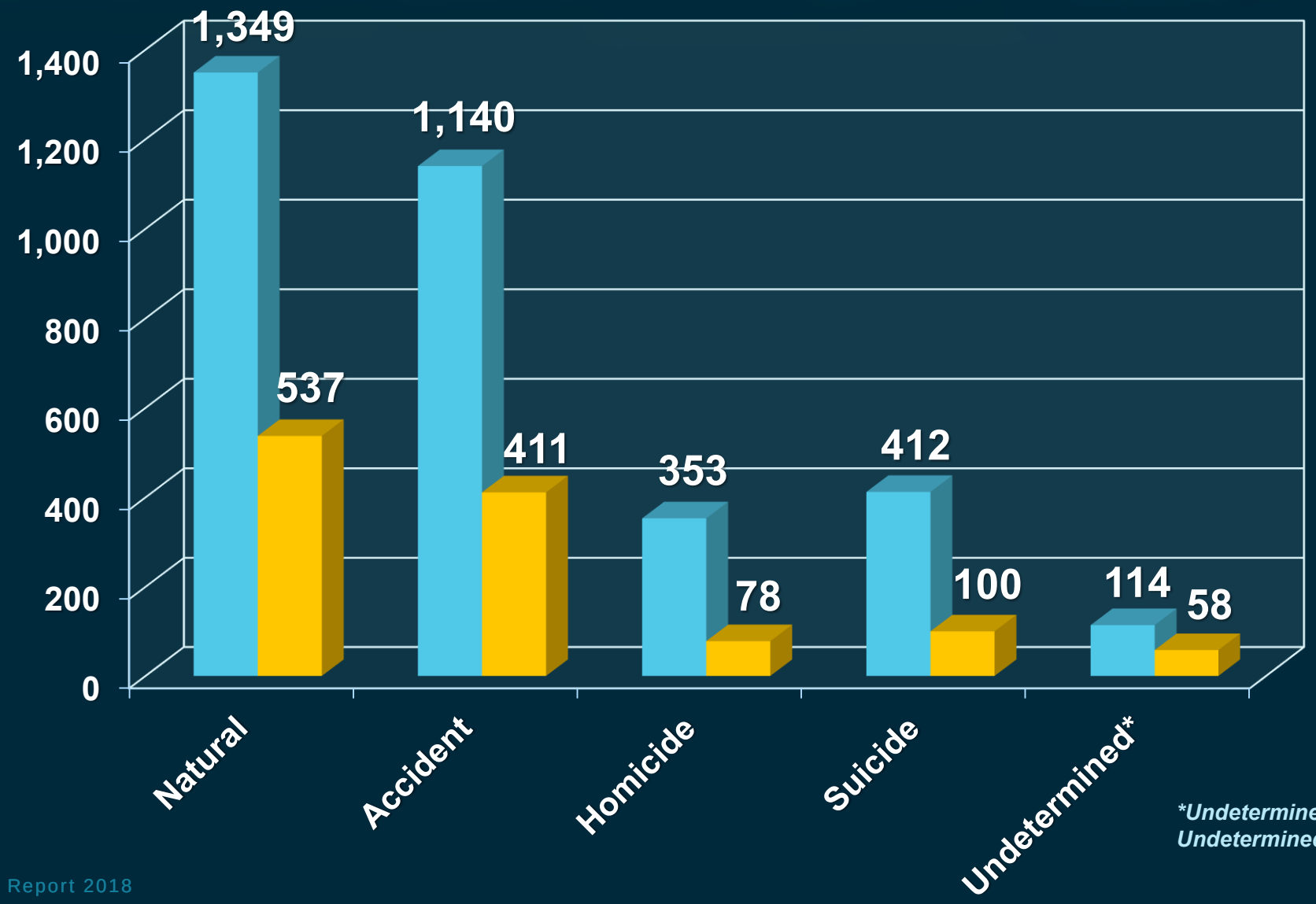
External Examinations



N=639

- Natural: 270
- Accident: 351
- Suicide: 14
- Undetermined: 3
- Fetal: 1

Manner of Death by Sex



N=4,552

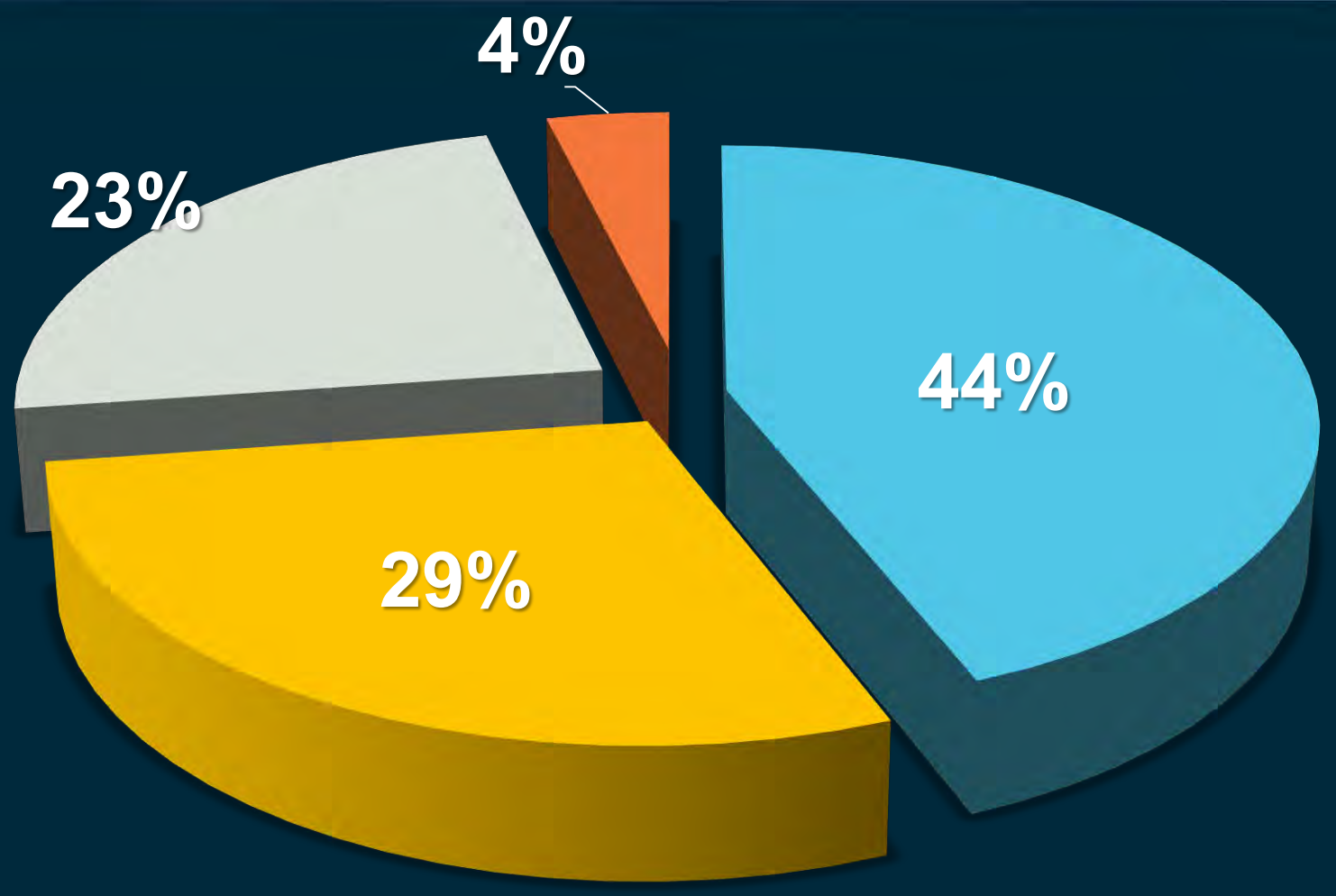
Male

Female

Sex is unknown in 2 *fetus* cases

**Undetermined category composed of cases with Undetermined manner(166) and fetal manner (6)*

Race/Ethnicity of ML cases



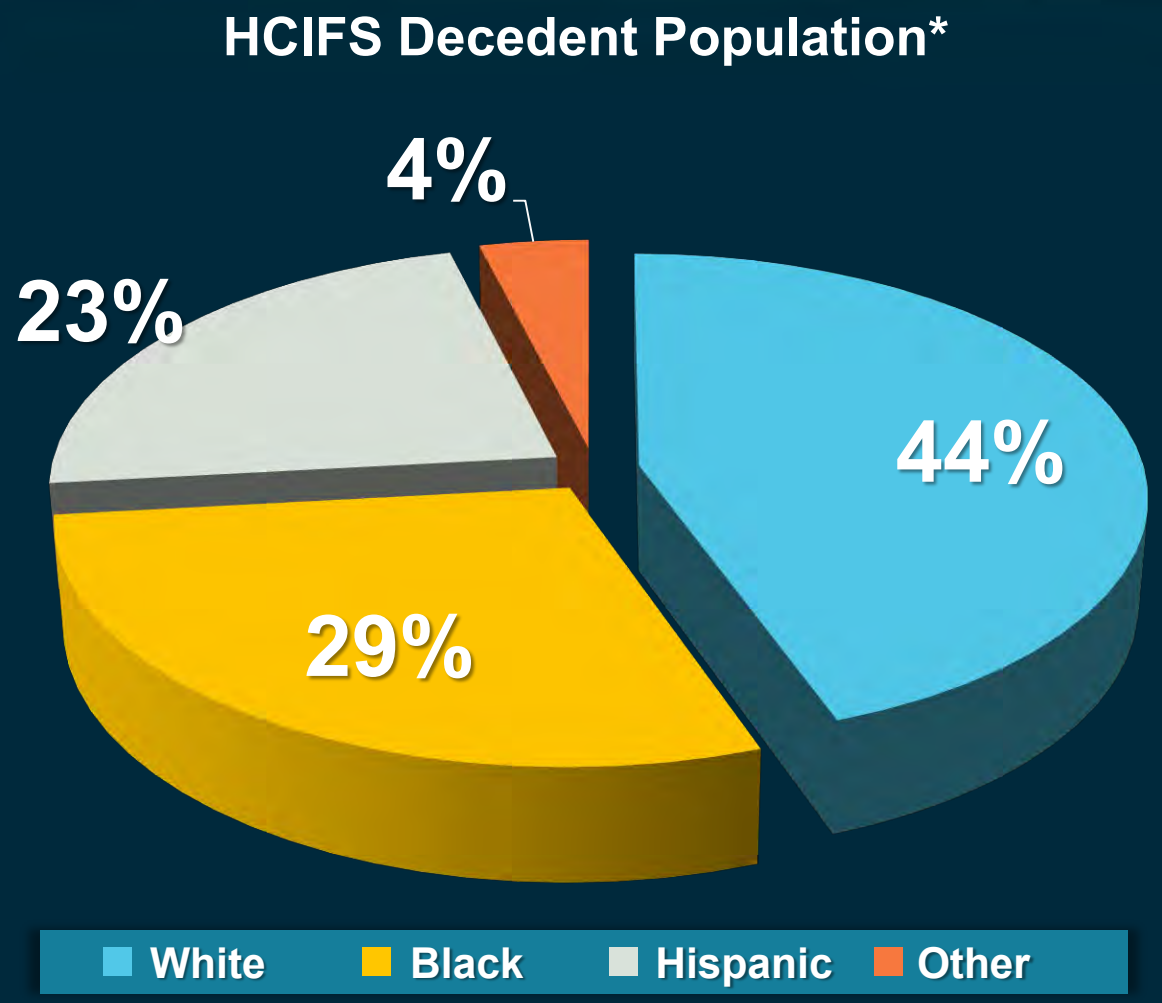
N=4,548

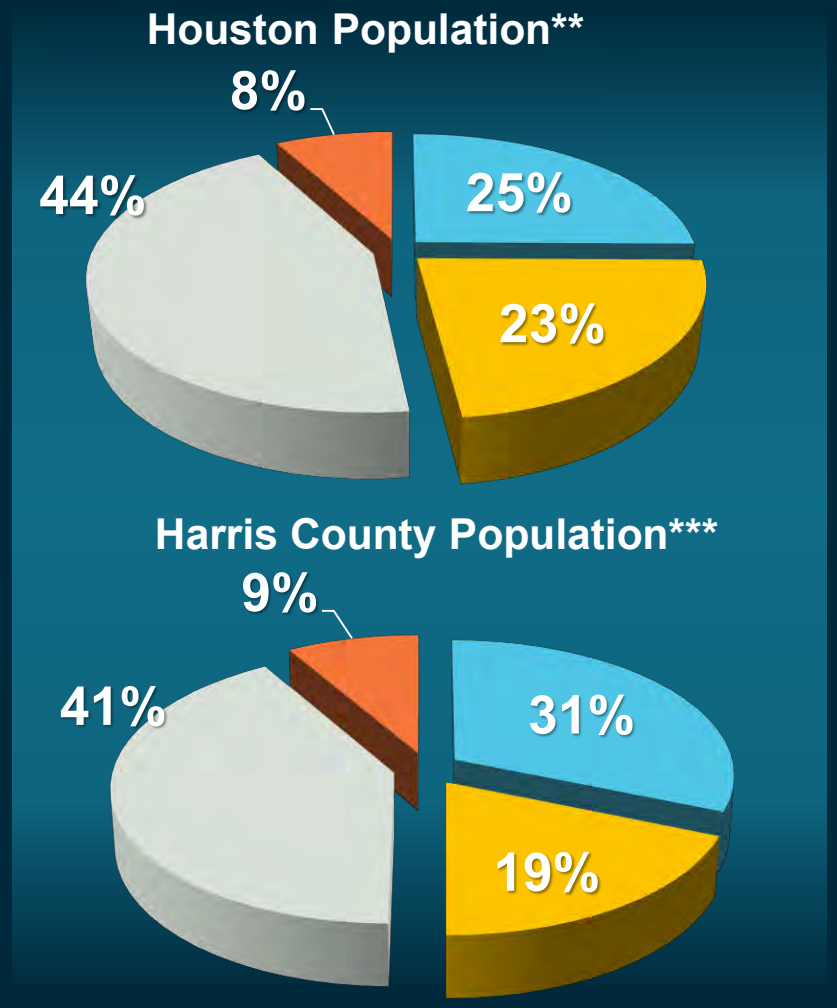
- White: 2,002
- Black: 1,307
- Hispanic: 1,064
- Other: 175*

Race/Ethnicity is unknown in 6 cases.

** Other is composed of Native American (3) and Asian (172)*

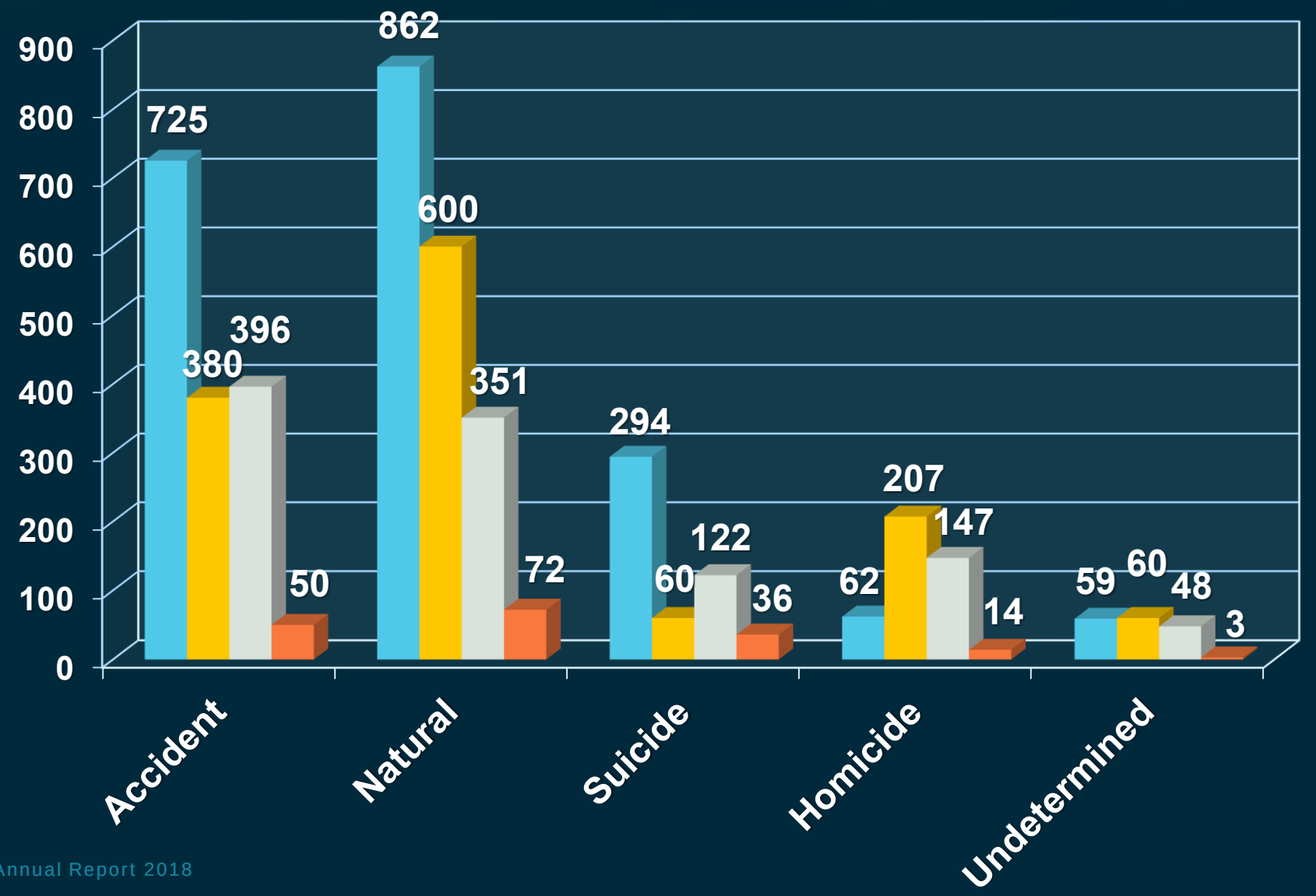
Race/Ethnicity Case Demographics Compared to Population





** HCIFS decedent population, N=4,546, excludes unknown race/ethnicity*
*** City of Houston population, N=2,325,502, estimated by U.S. Census Bureau as of July 1, 2018*
**** Harris County population, N=4,698,619 estimated by Texas DSHS Center for Health Statistics*

ML Cases by Manner and Race/Ethnicity

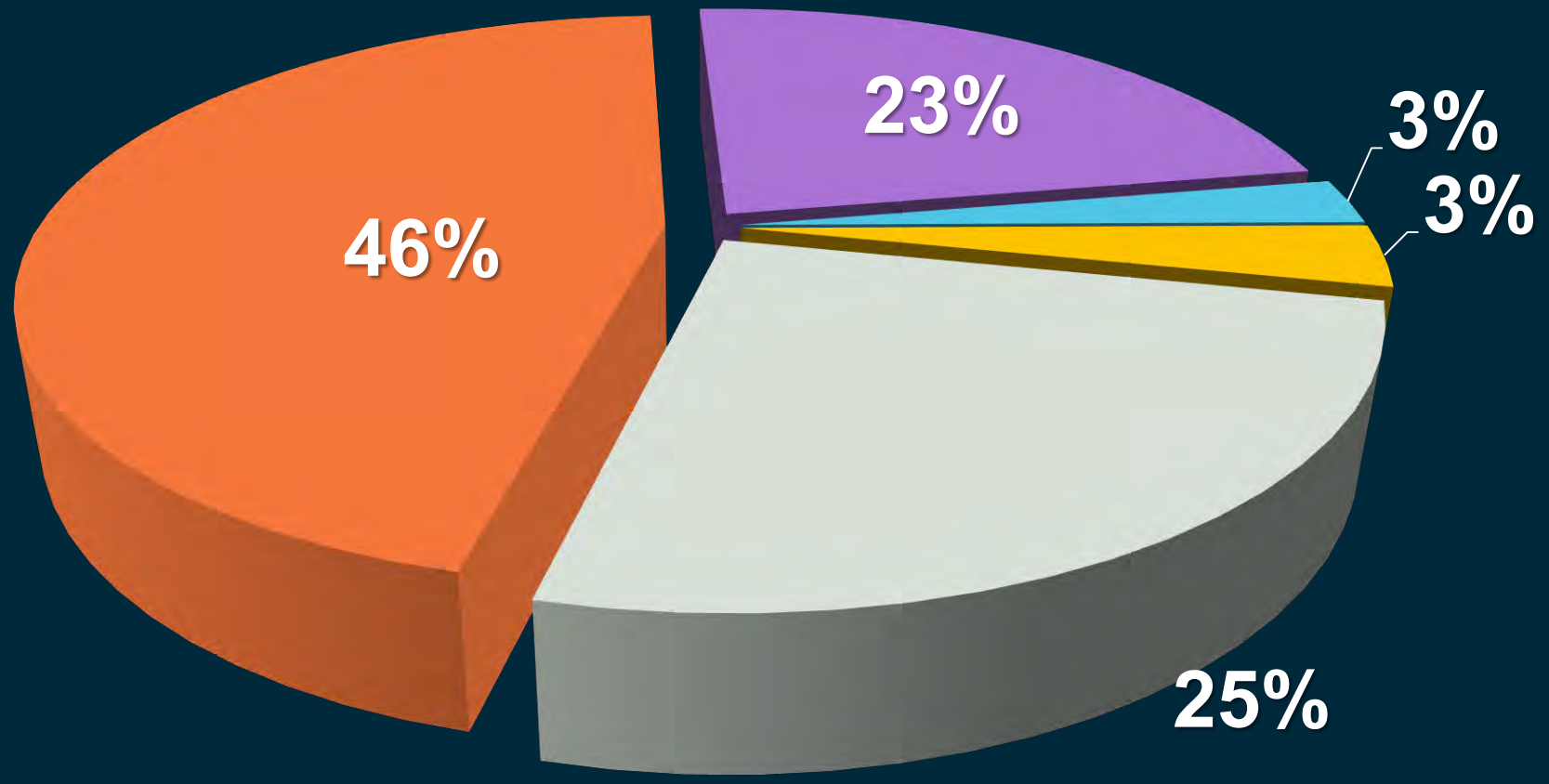


N=4,548

- White: 2,002
- Black: 1,307
- Hispanic: 1,064
- Other: 175

Excludes 6 individuals of unknown race/ethnicity

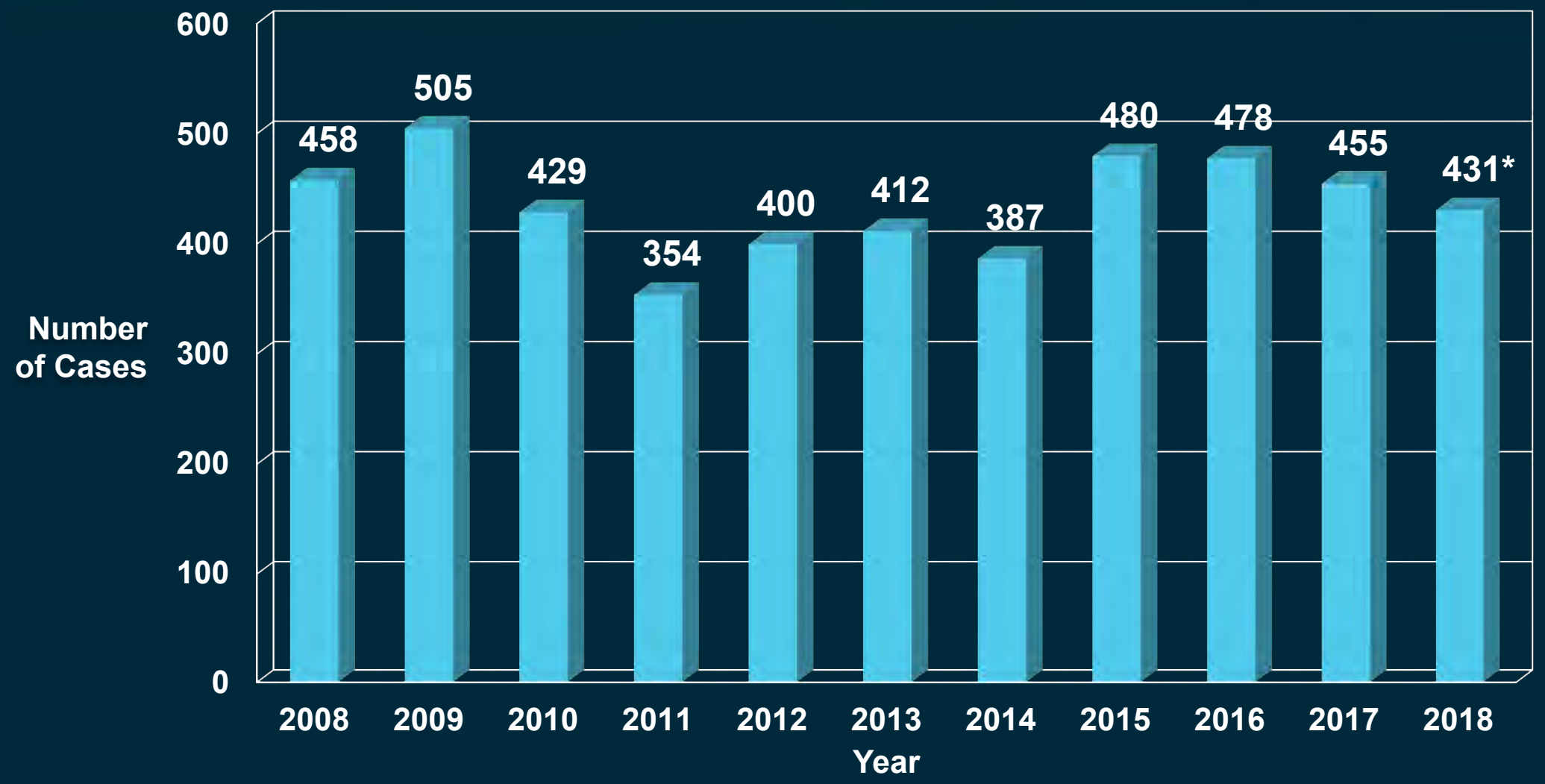
ML Cases by Age



N=4,554

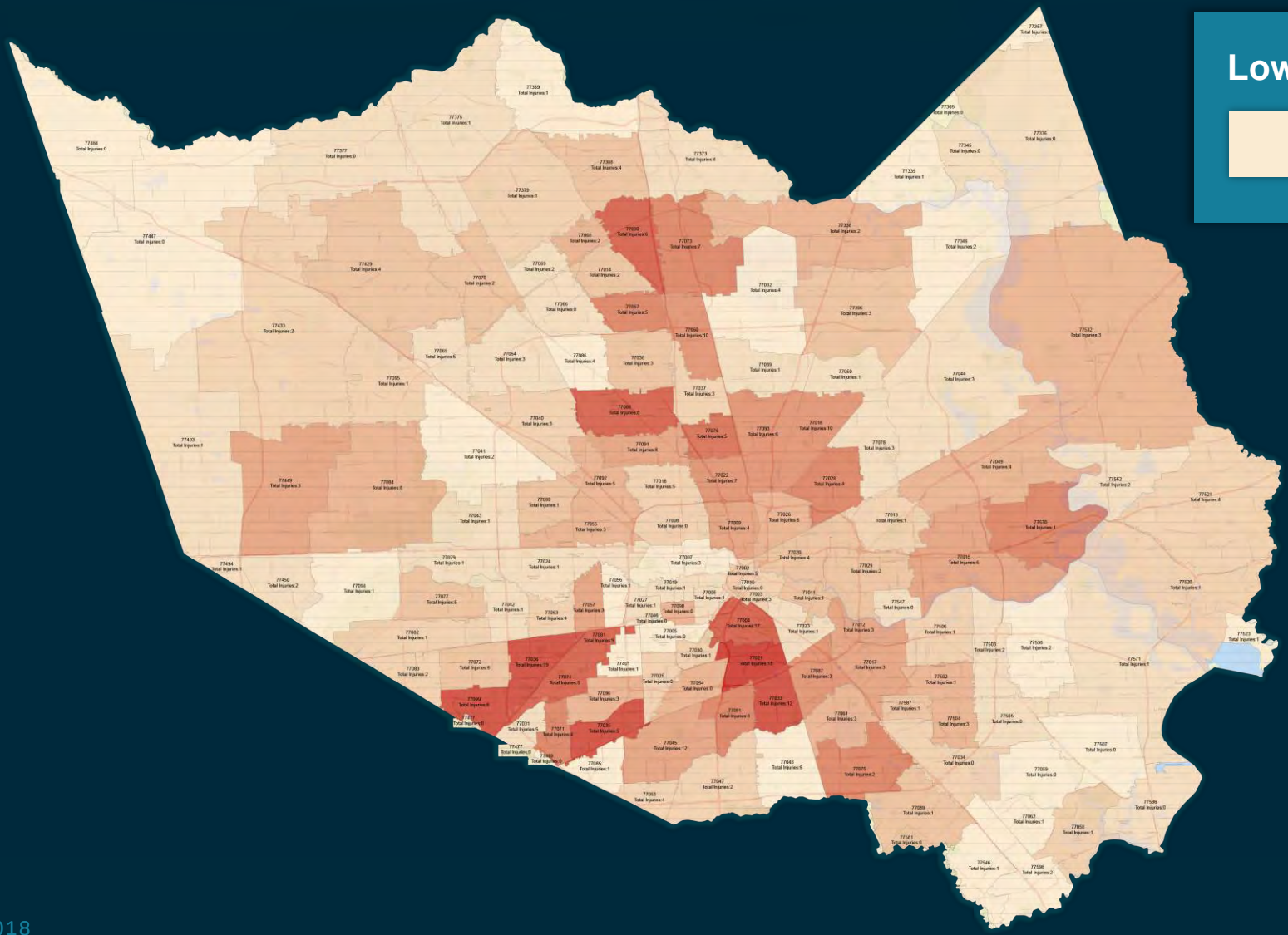
- <1 Year: 119
- 1-17 Years: 160
- 18-39 Years: 1,155
- 40-64 Years: 2,075
- 65+ Years: 1,045

Homicide Cases

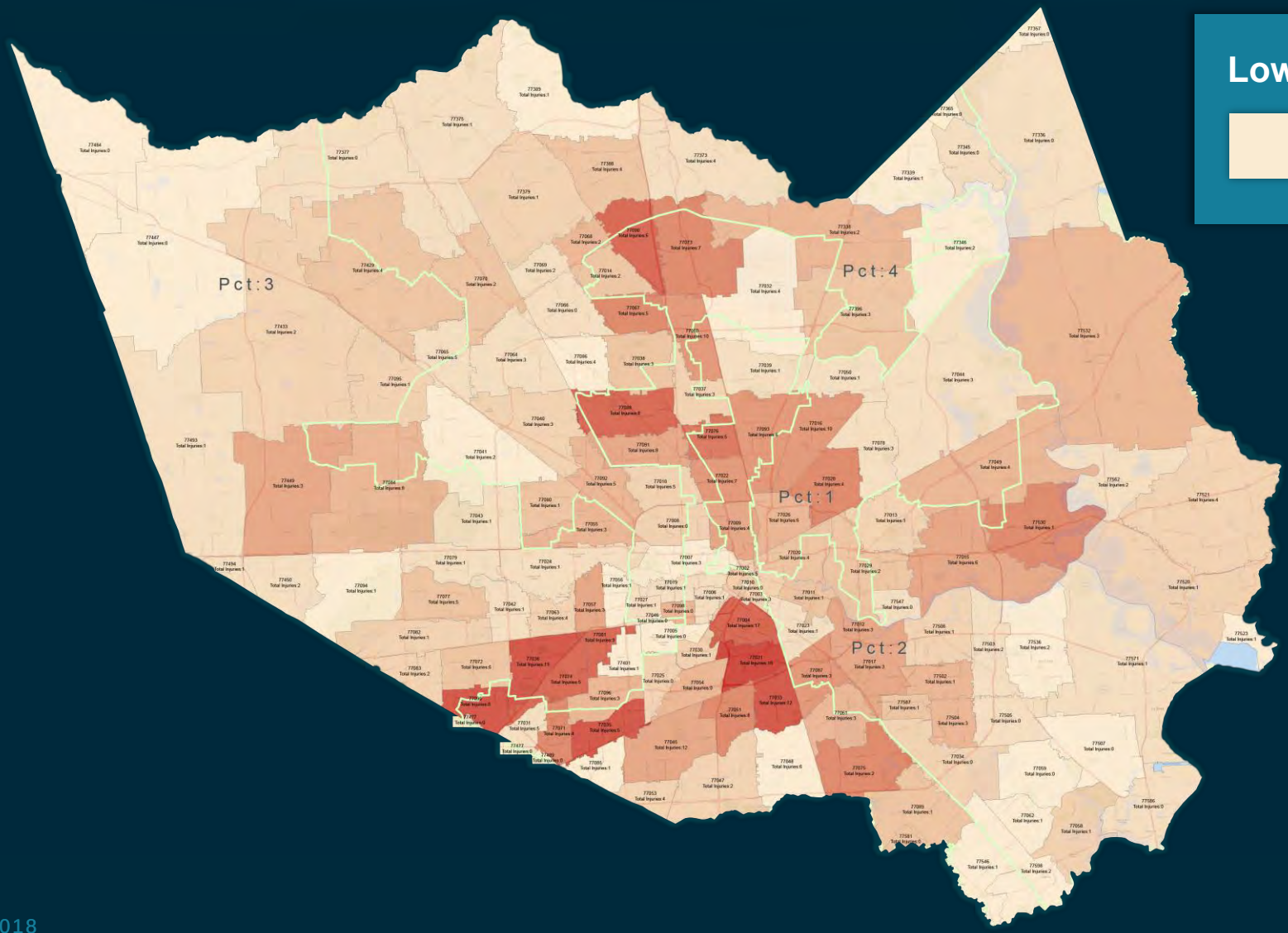


** About a 5% decrease compared with 2017; a 21% increase compared with 2011*

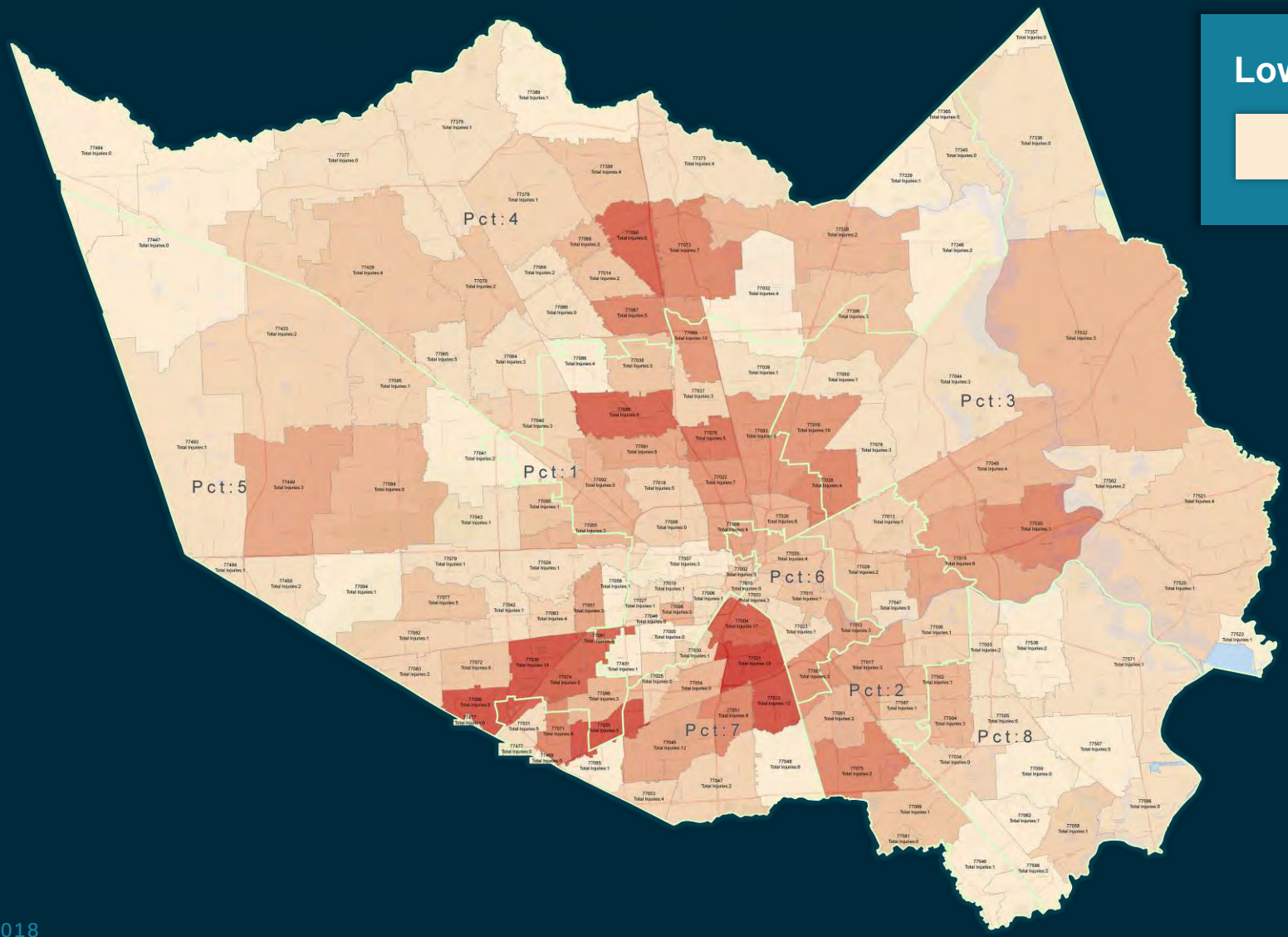
Homicides by Injury Zip



Homicides by Injury Zip/Commissioner Precinct Boundary

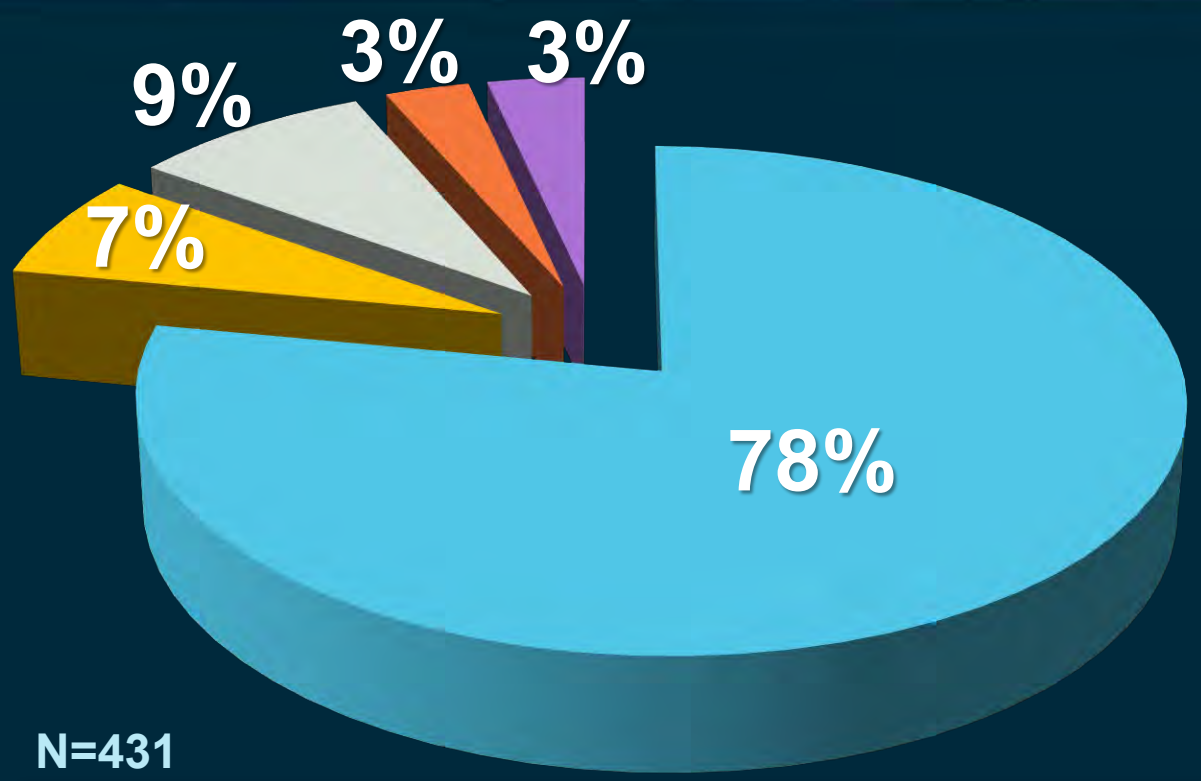


Homicides by Injury Zip/Constable Precinct Boundary



Cause of Death in Homicide Cases

- **26 cases were linked to at least one other ML case**
  (e.g. double murder, murder suicide, etc.)
- **At least 47 homicide cases are associated with domestic violence**
- **11 homicide deaths occurred while at work**



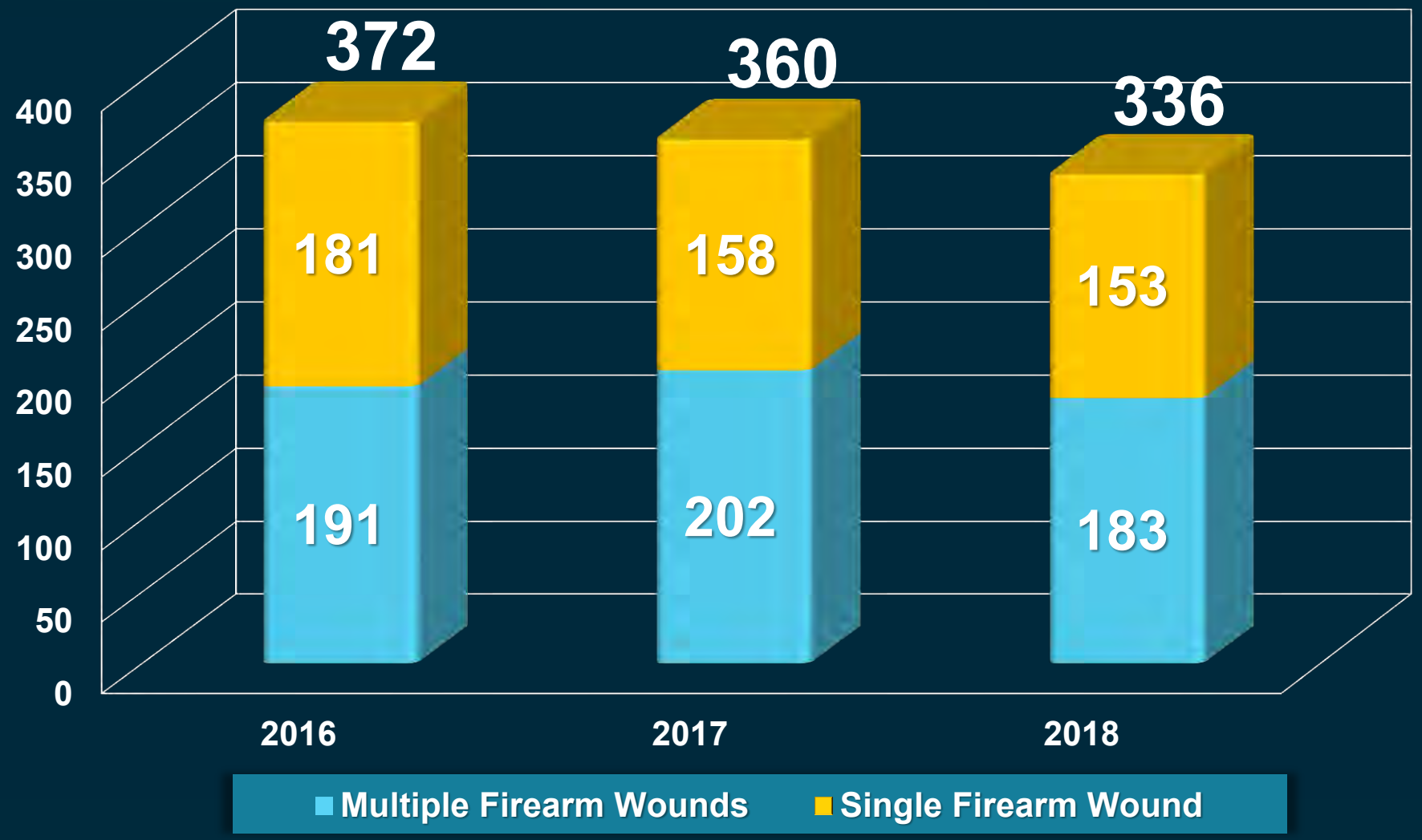
N=431

- Firearm: 336
- Sharp Trauma: 30
- Blunt Trauma: 37
- Asphyxia/Strangulation: 13
- Other: 15*

Cases with multiple causes of death include blunt-/sharp-force trauma (3)

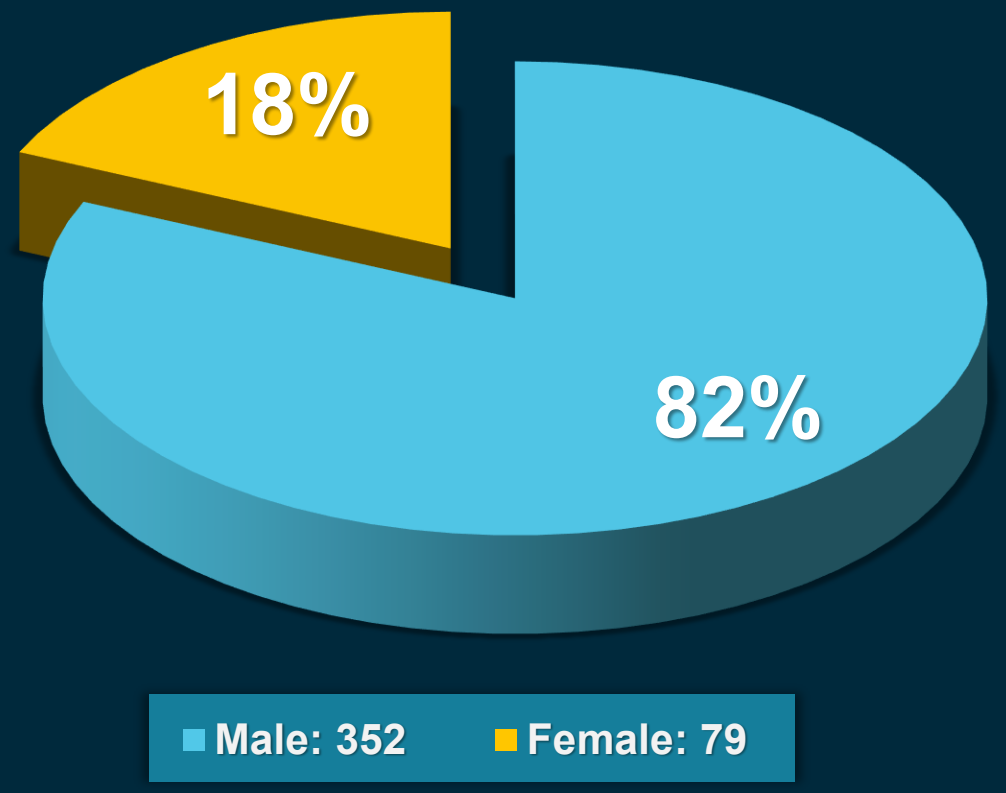
** Other causes include the use of drugs, thermal injuries, homicidal violence, and drowning*

Homicide Deaths by Firearms



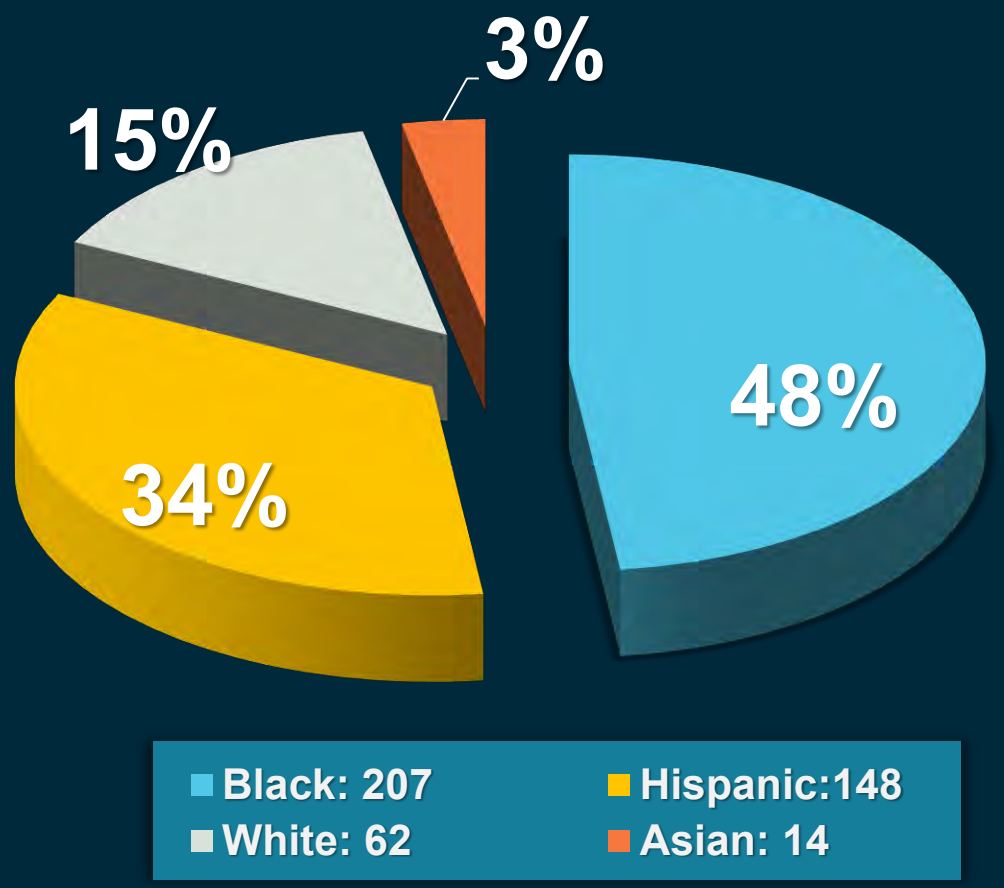
Homicide Deaths by Demographics

Sex



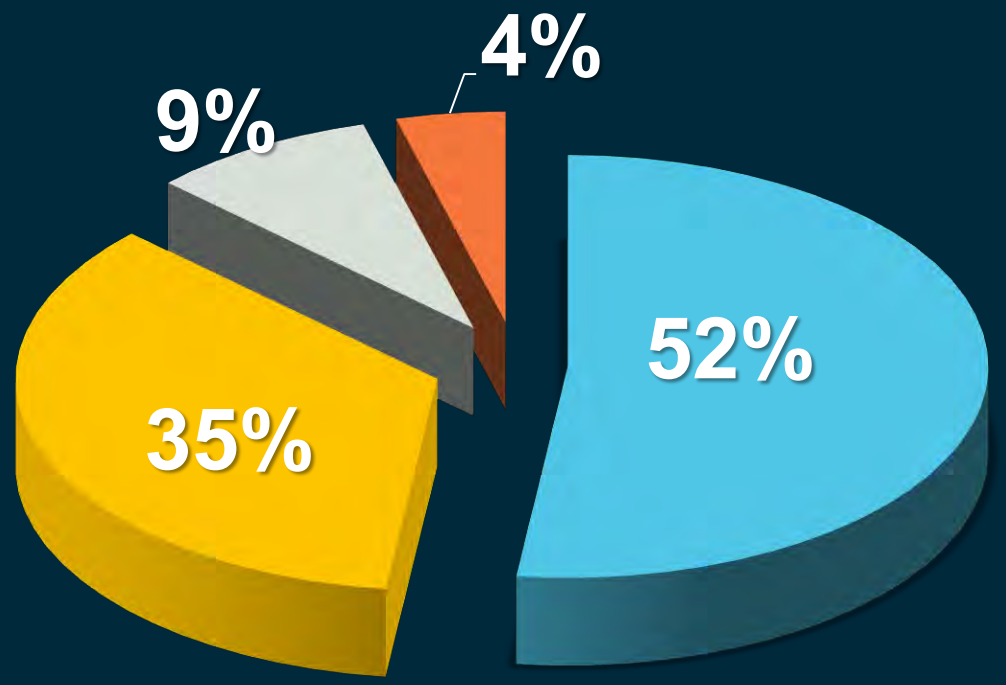
N=431

Race/Ethnicity



Homicide Deaths by Race/Ethnicity – Harris County & City of Houston

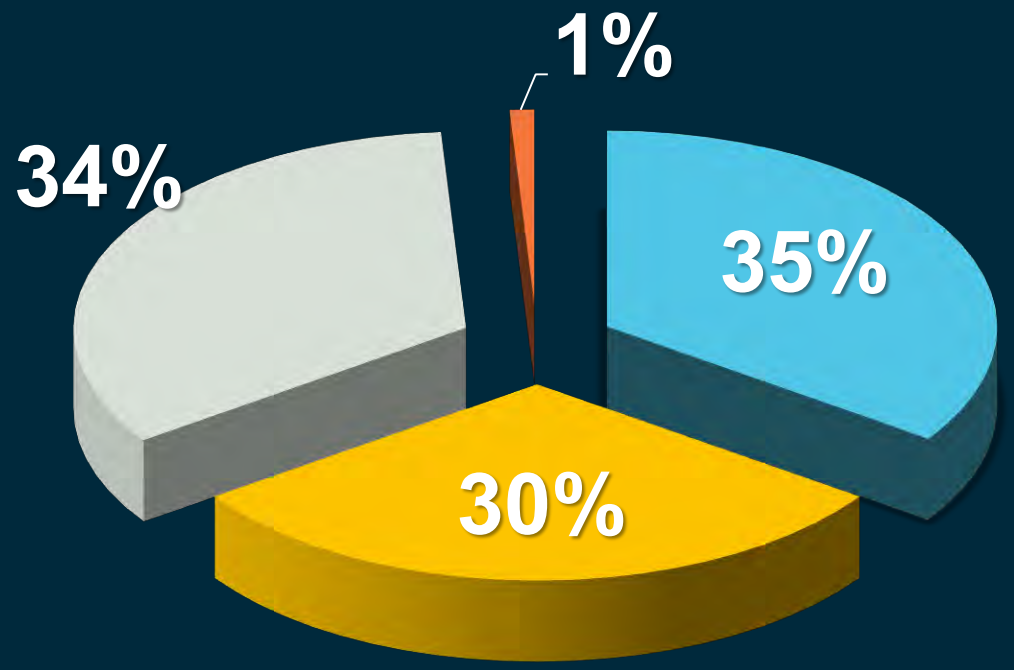
City of Houston



N=333*

Harris County

Excluding the City of Houston

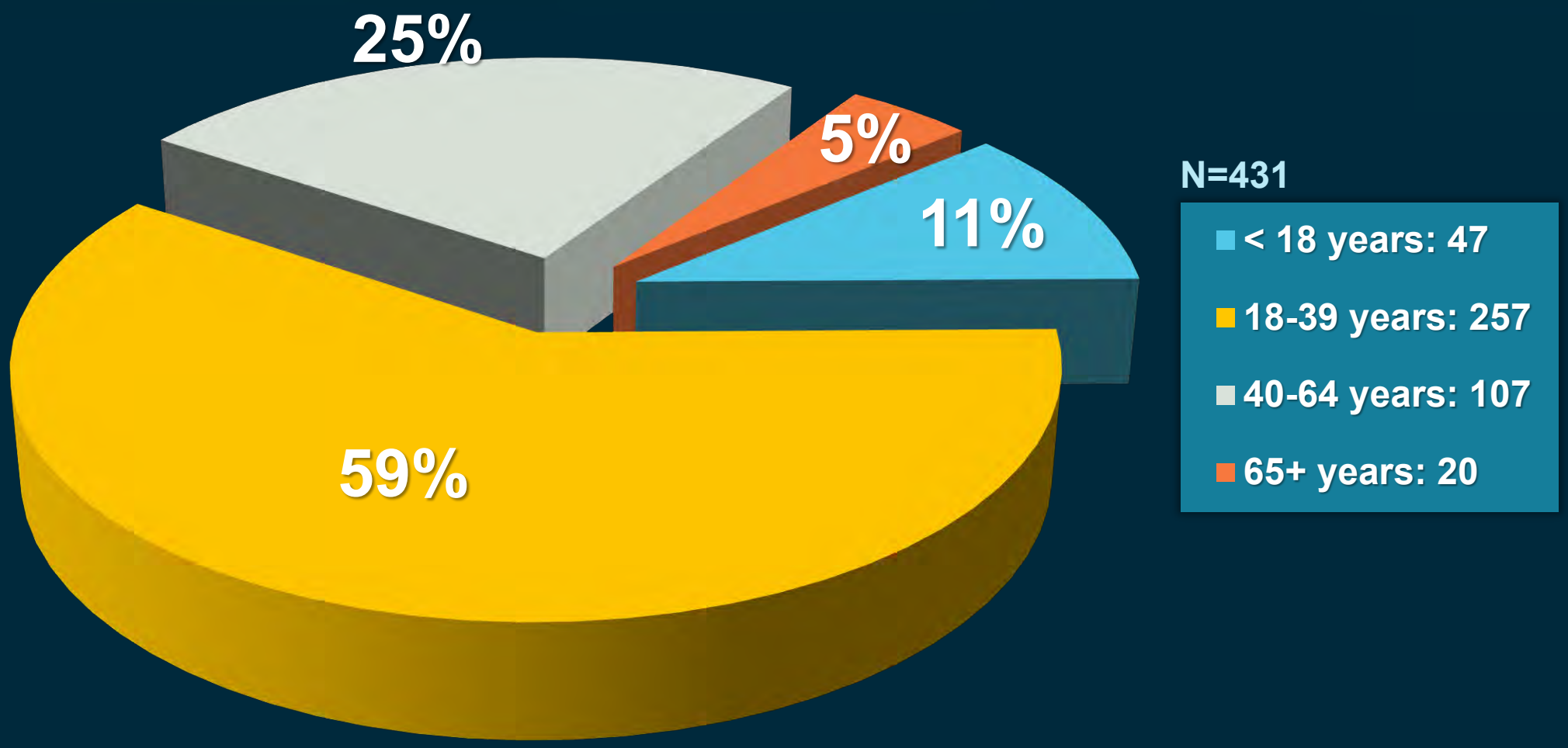


N=98

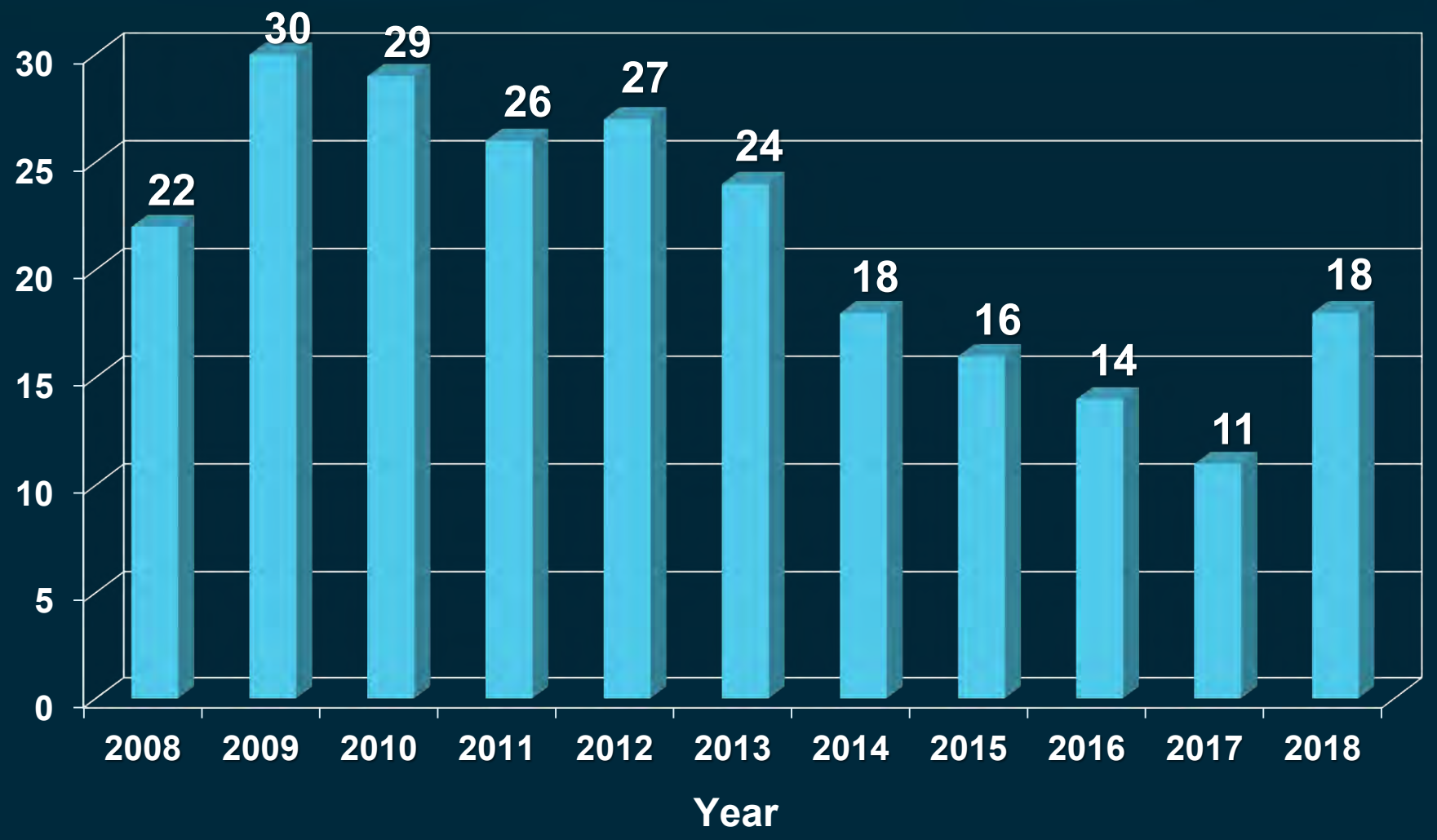
Black Hispanic White Asian

** 333 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.*

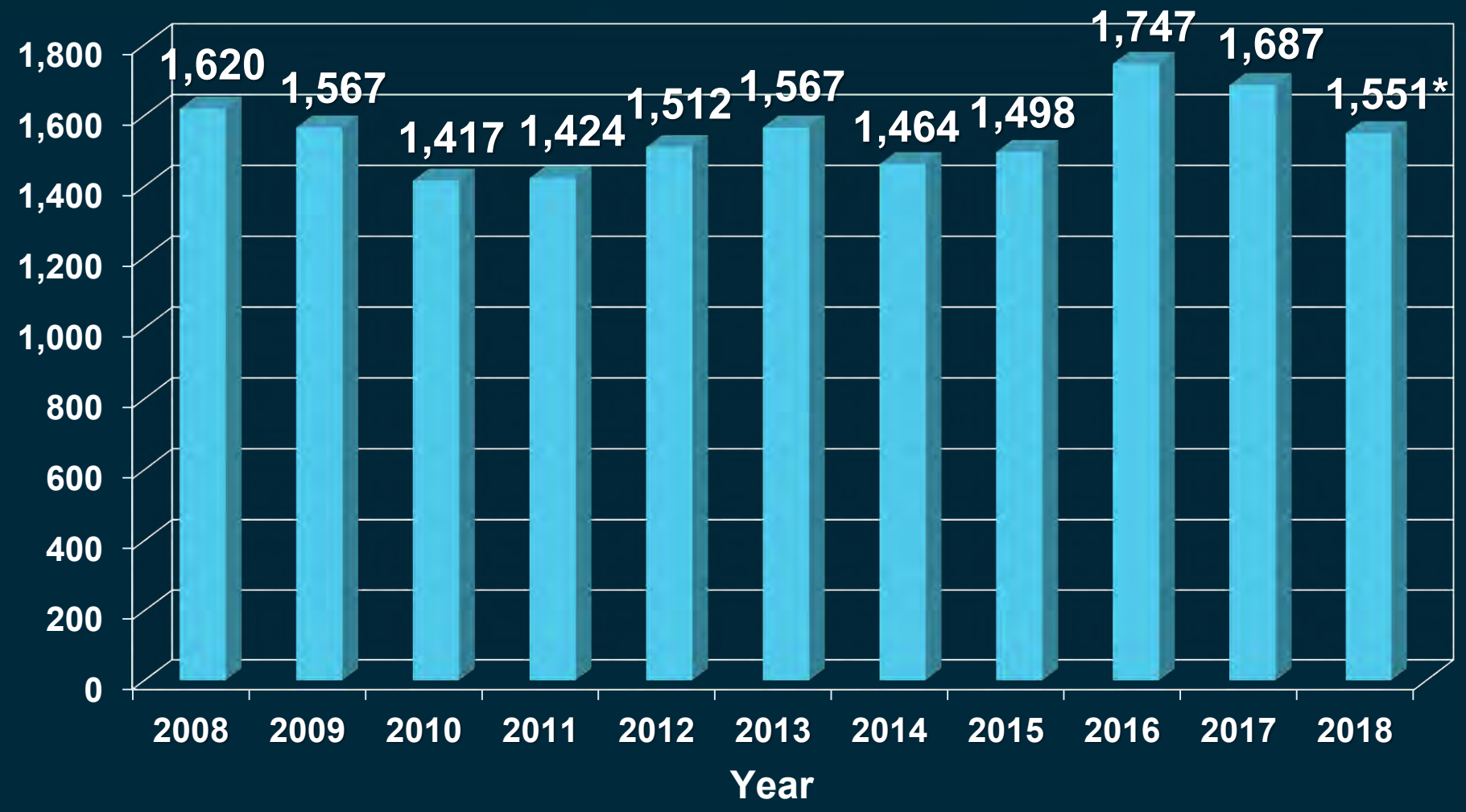
Homicide Deaths by Age



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



ML Accidental Cases

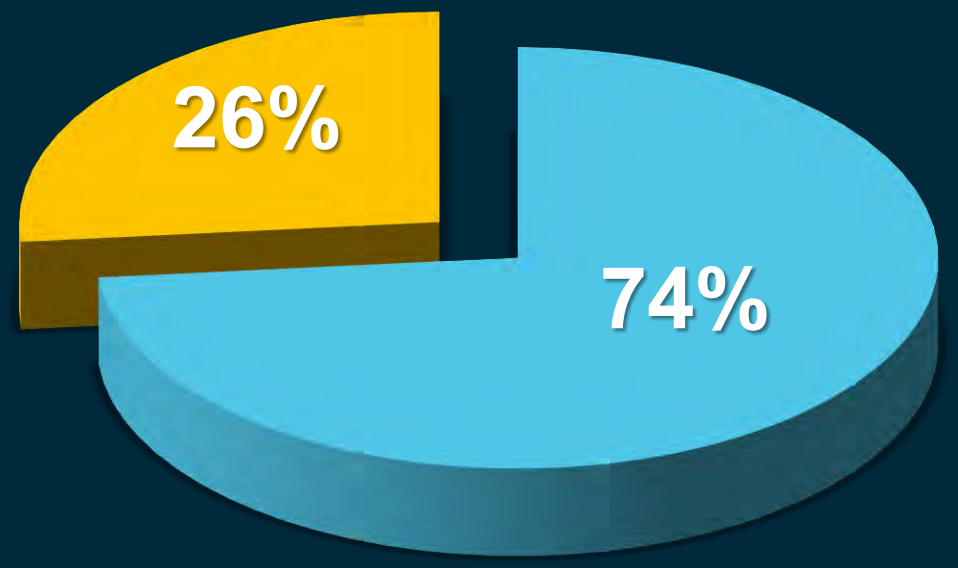


** About an 8% decrease compared with 2017; a 9% increase compared with 2010*

Demographics of ML Accidental Deaths

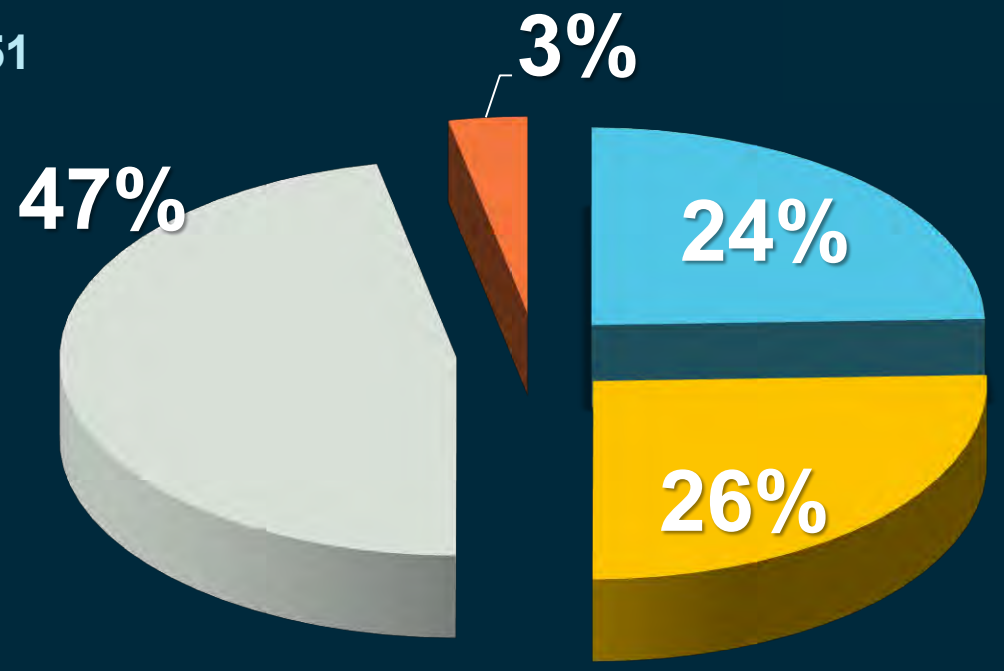
N=1,551

Sex



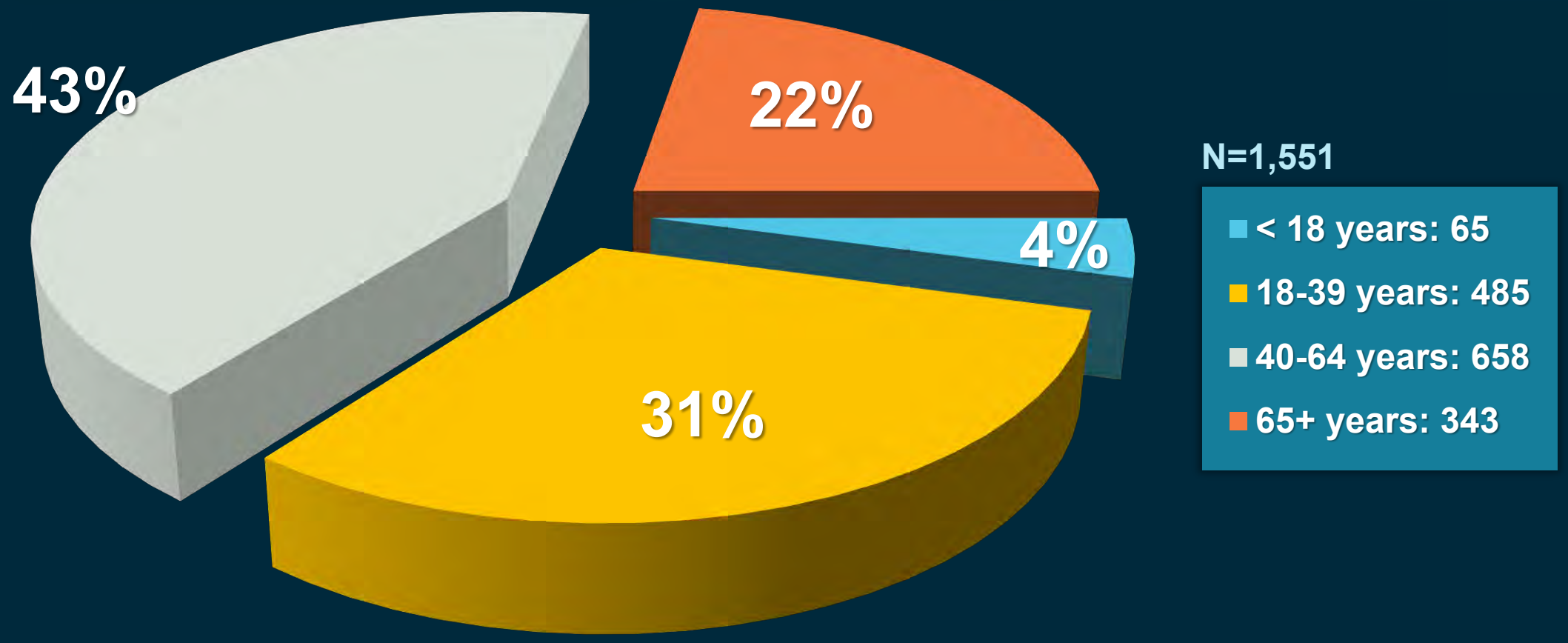
Male: 1,140 Female: 411

Race/Ethnicity

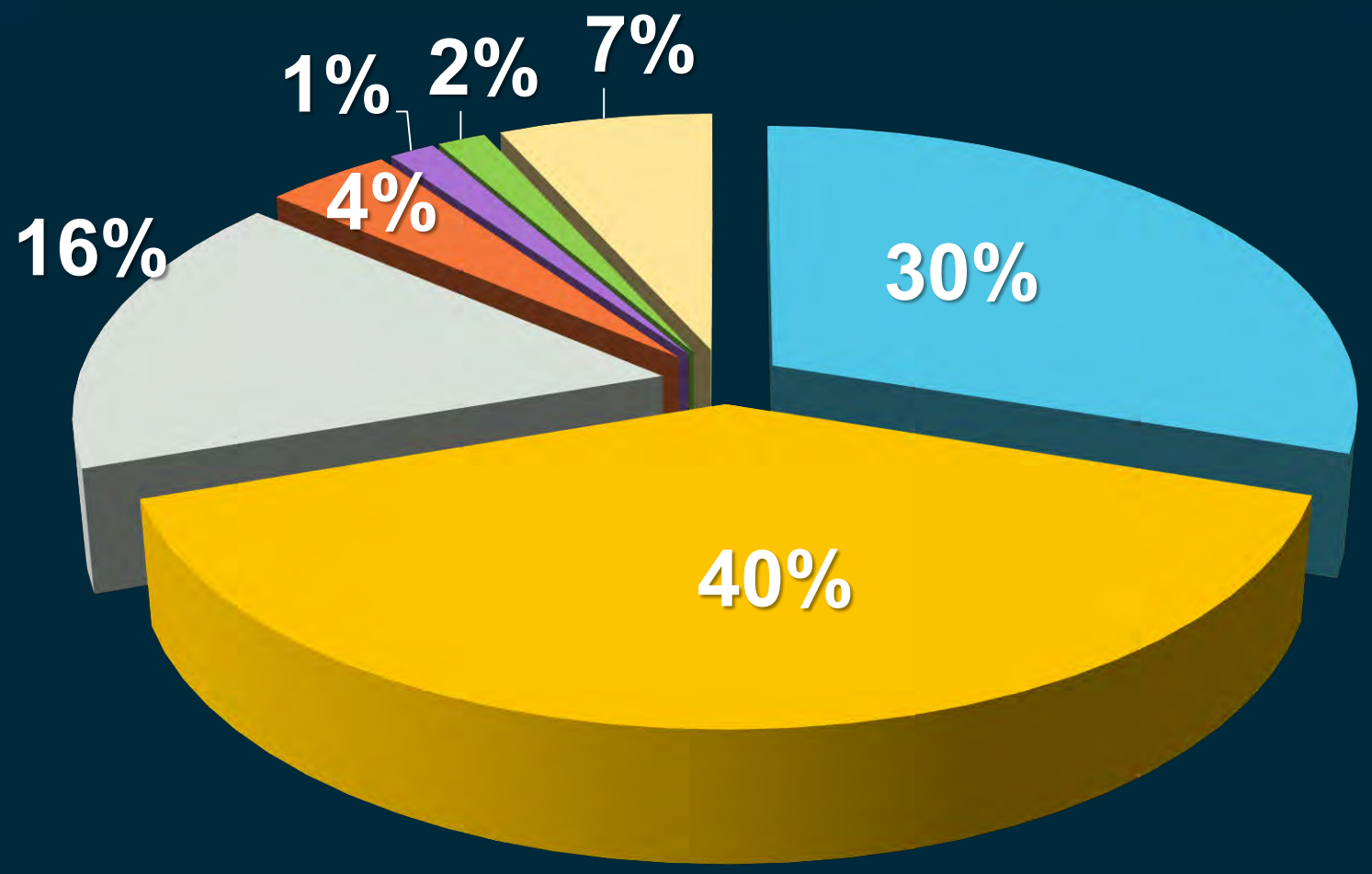


Black: 380 Hispanic: 396
White: 725 Asian: 50

ML Accidental Deaths by Age



Most Common Causes of ML Accidental Deaths



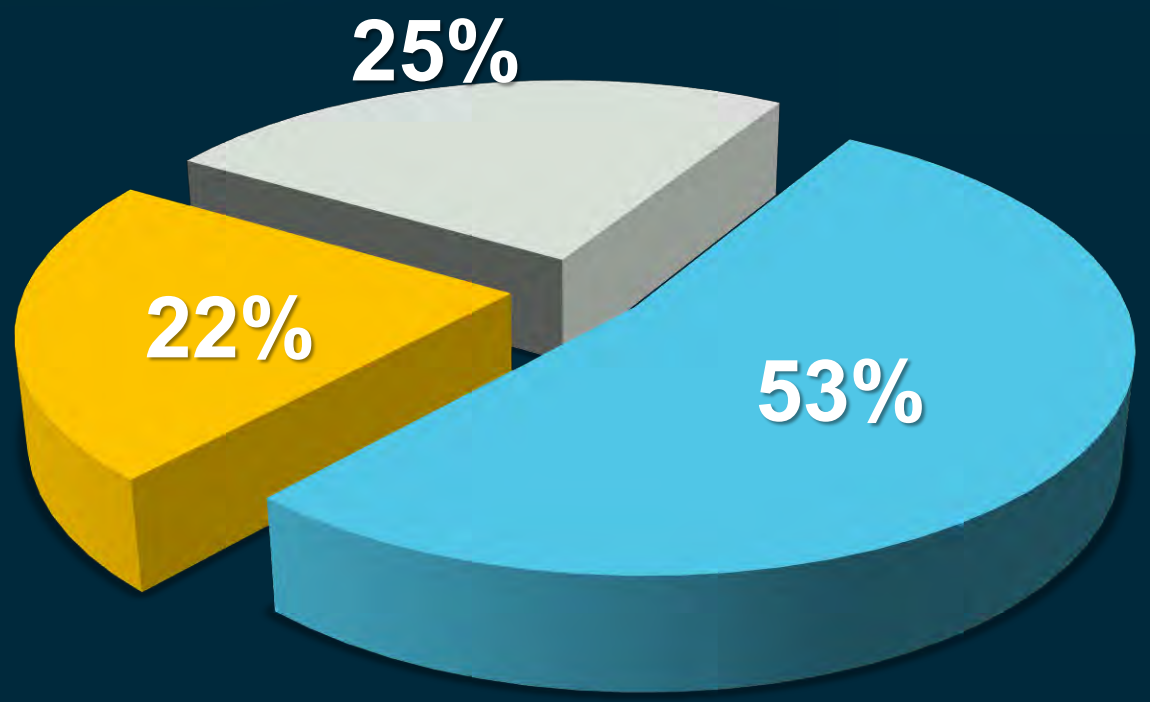
N=1,551

- Motor Vehicle: 466
- Drug Toxicity: 616
- Non-MVA Blunt Trauma: 255
- Drowning: 62
- Asphyxia: 23
- Fire/Thermal: 24
- Other: 105*

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

Motor Vehicle Accident (MVA) Death Cases

- MVA fatalities include 30 children aged 2 days to 17 years
- 4 children were pedestrians, aged 2 years to 13 years of age
- 20% of driver fatalities (50) were under 25 years of age
- 25 stranded motorists were hit while stopped

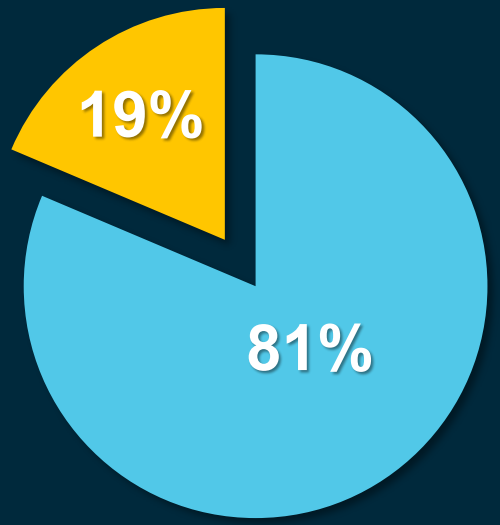


N=466

- Driver: 247
- Passenger or Unknown Position: 101
- Pedestrian: 118

MVA Sex and Age Distributions

Driver Sex Distribution

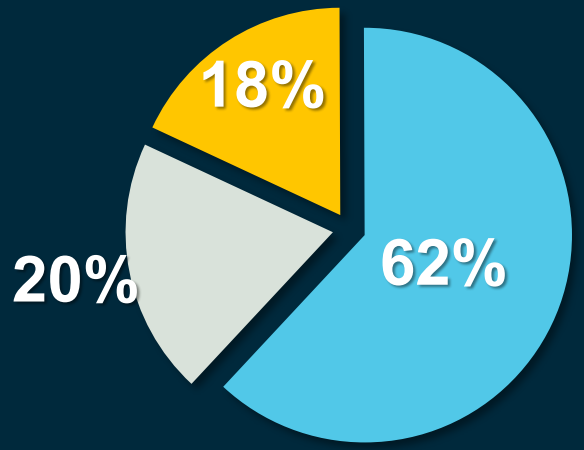


N=247

- Male: 201
- Female: 46

The youngest driver fatality was 15; the oldest 92

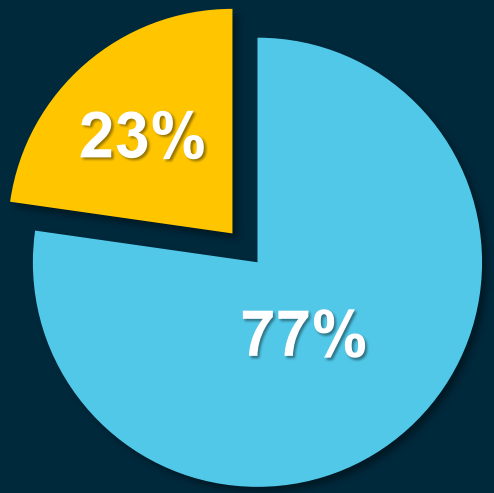
Proportion of drivers who were teens or senior citizens



N=247

- 16 to 25 years: 50
- 65+ years: 45
- Other Ages: 152

Sex Distribution all MVA



N=466

- Male: 360
- Female: 106

Accidental Drowning

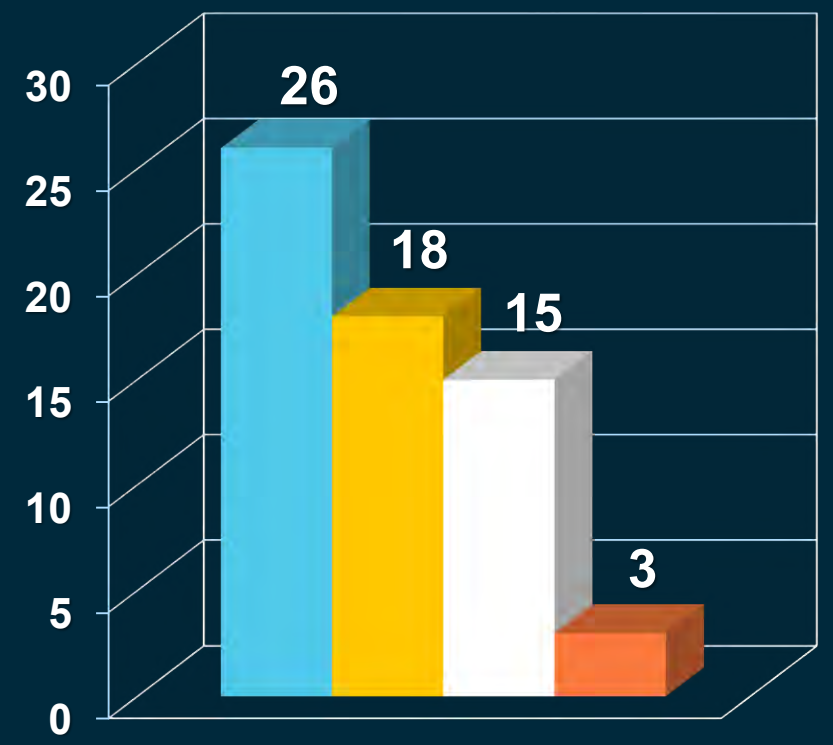
- 62 total cases of accidental drowning in 2018

- Age range is 19 months to 72 years
  - Includes 13 children aged 2 to 7 years

  - 45 of the drowning cases are males compared to 17 females

Accidental Drowning

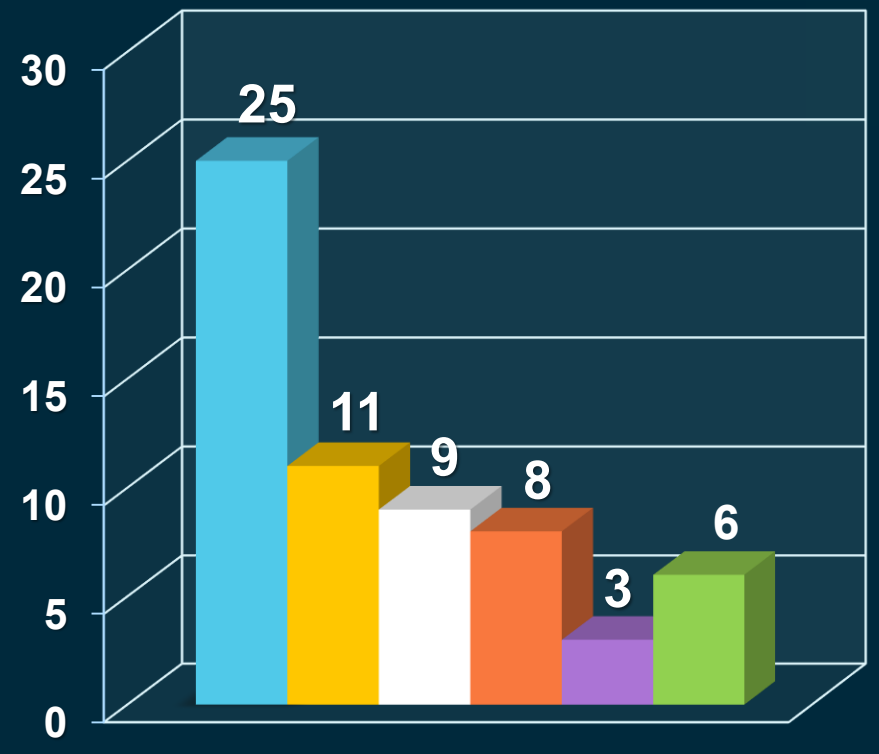
Race/Ethnicity



N=62

White Black Hispanic Asian

Types of Water

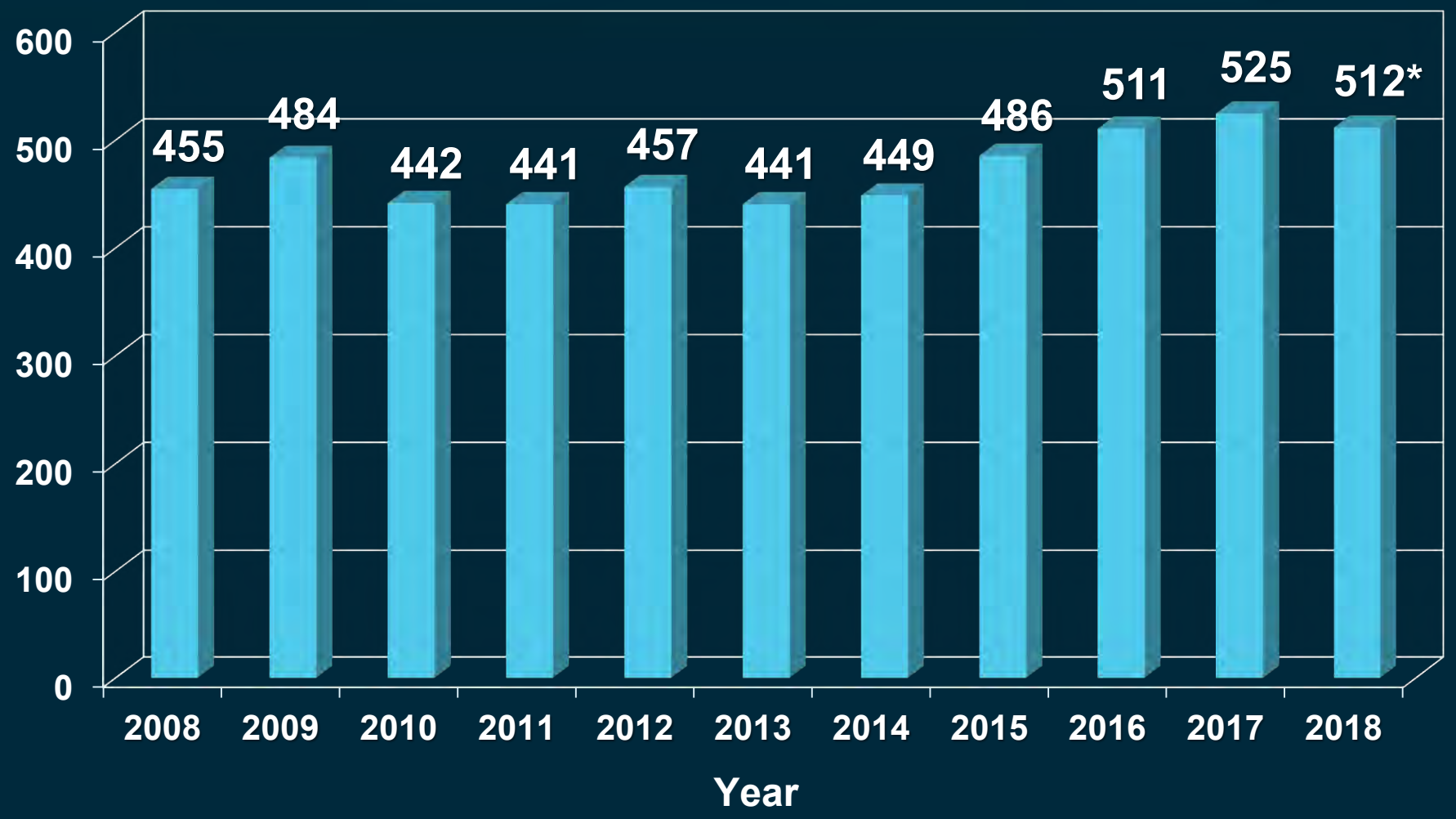


N=62

Residential Pool
Natural Water*
Lake/Pond
Community Pool
Bathtub
Other**

** Natural Water category includes death locations such as bayou, creek, river, beach and ship channel.*
*** Other category includes death locations such as near a roadway, parking lot or other open area, and ditch.*

ML Suicide Cases



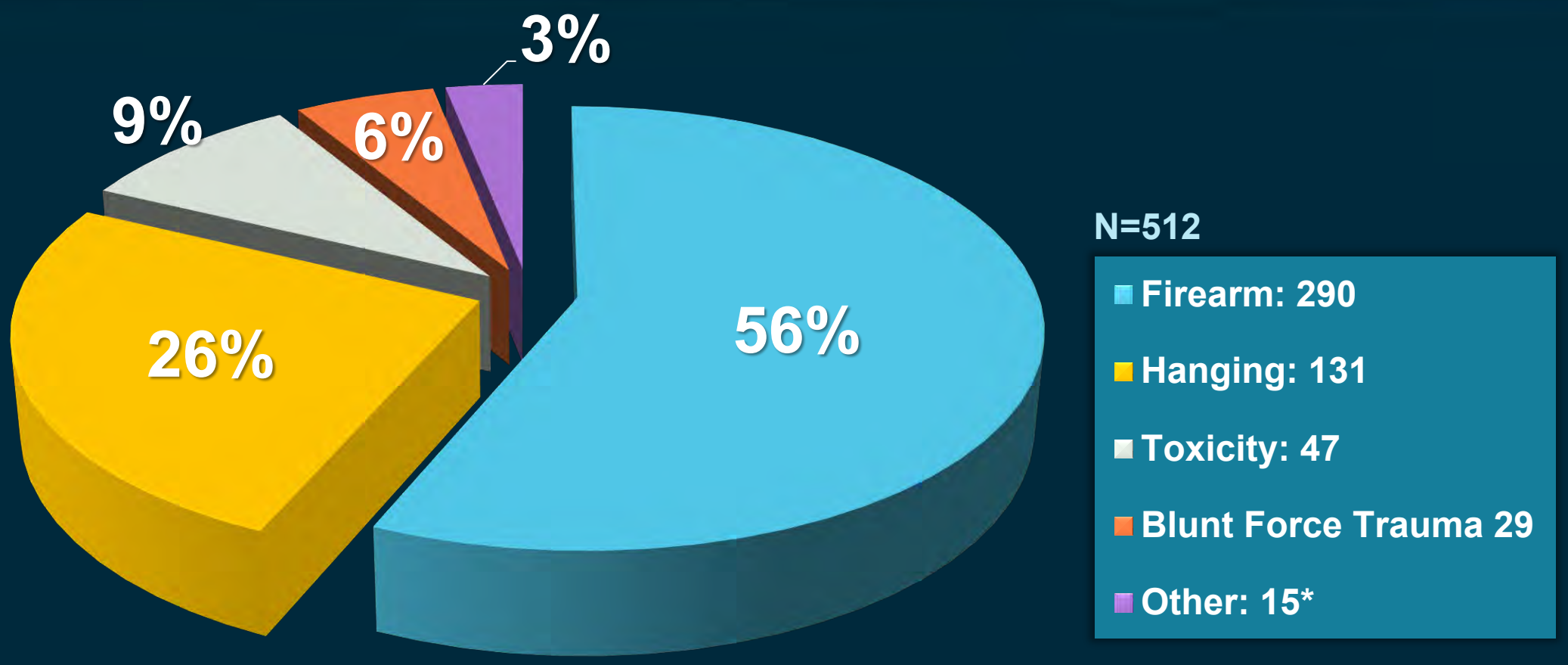
** About a 2% decrease compared with 2017; a 16% increase compared with 2011*

ML Suicide Case Demographics

- Male to female ratio is 4.12 to 1
  - A record high male to female ratio
- Age range is 11 to 91 years
- The majority (57%) of suicide cases occur among white individuals
- Number of companion Suicide/Homicide cases:
  - 2015: 15
  - 2016: 11
  - 2017: 17
  - 2018: 14

Image: *Shau Lin Hon/Slyworks Photography*

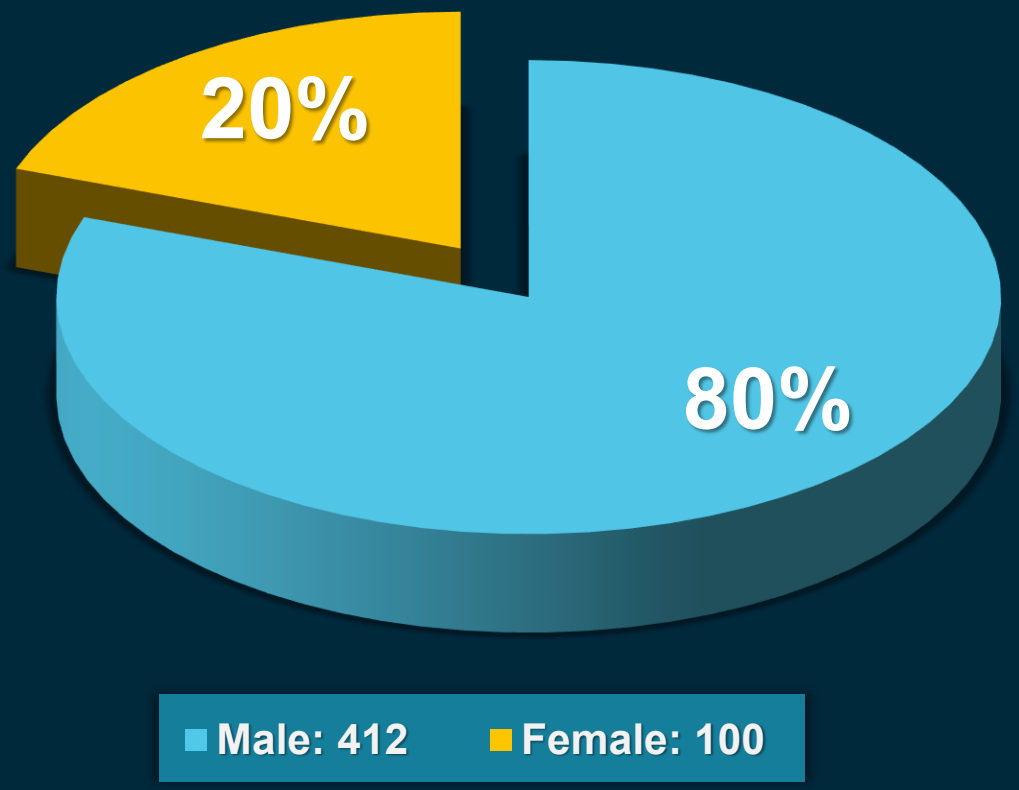
Causes of Death in ML Suicides



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

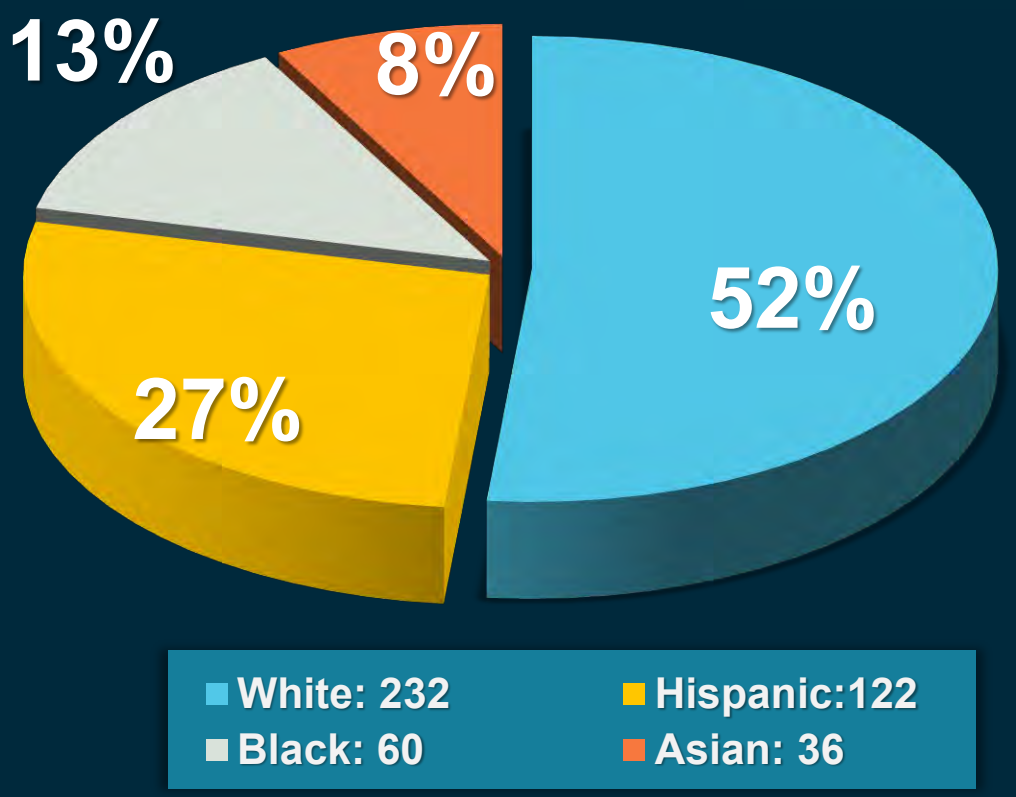
Suicide Deaths by Demographics

Sex

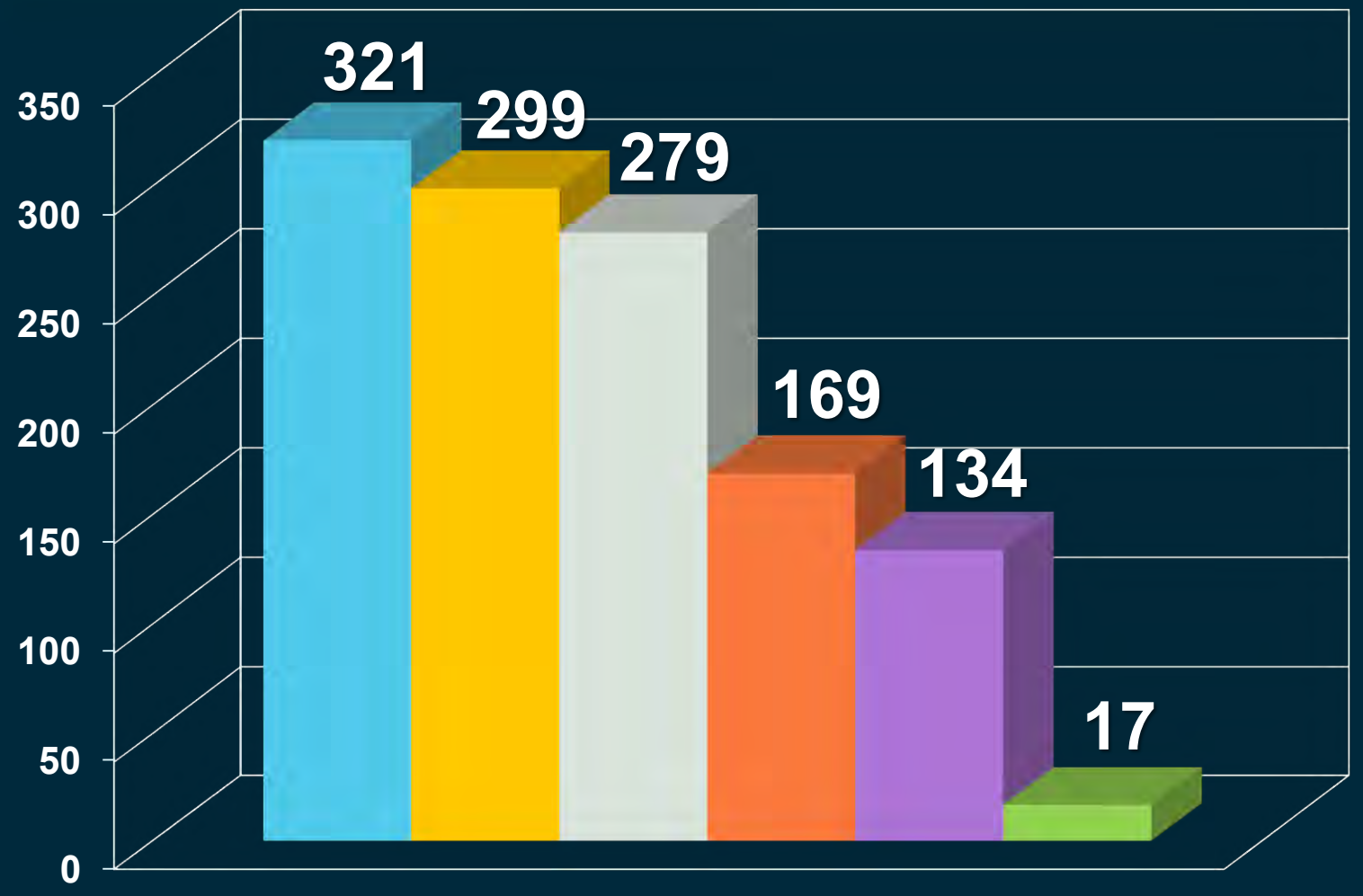


Race/Ethnicity

N=512



Most Frequent Substances Listed in Cause of Death for ML Cases

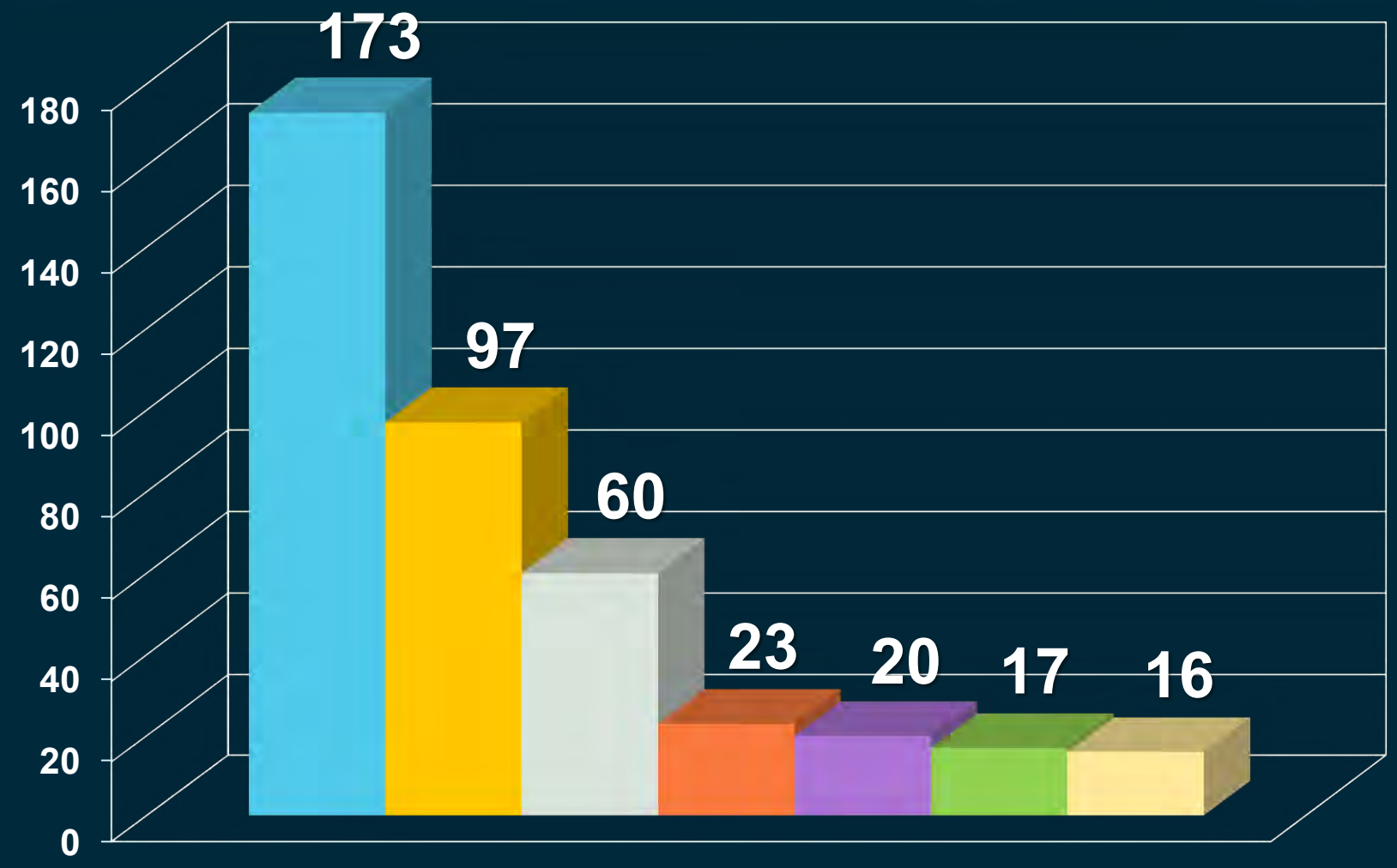


N=669

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

This data does not reflect discrete cases because drugs may be combined within a case.

Opiates/Opioids Listed in Cause of Death for ML Cases

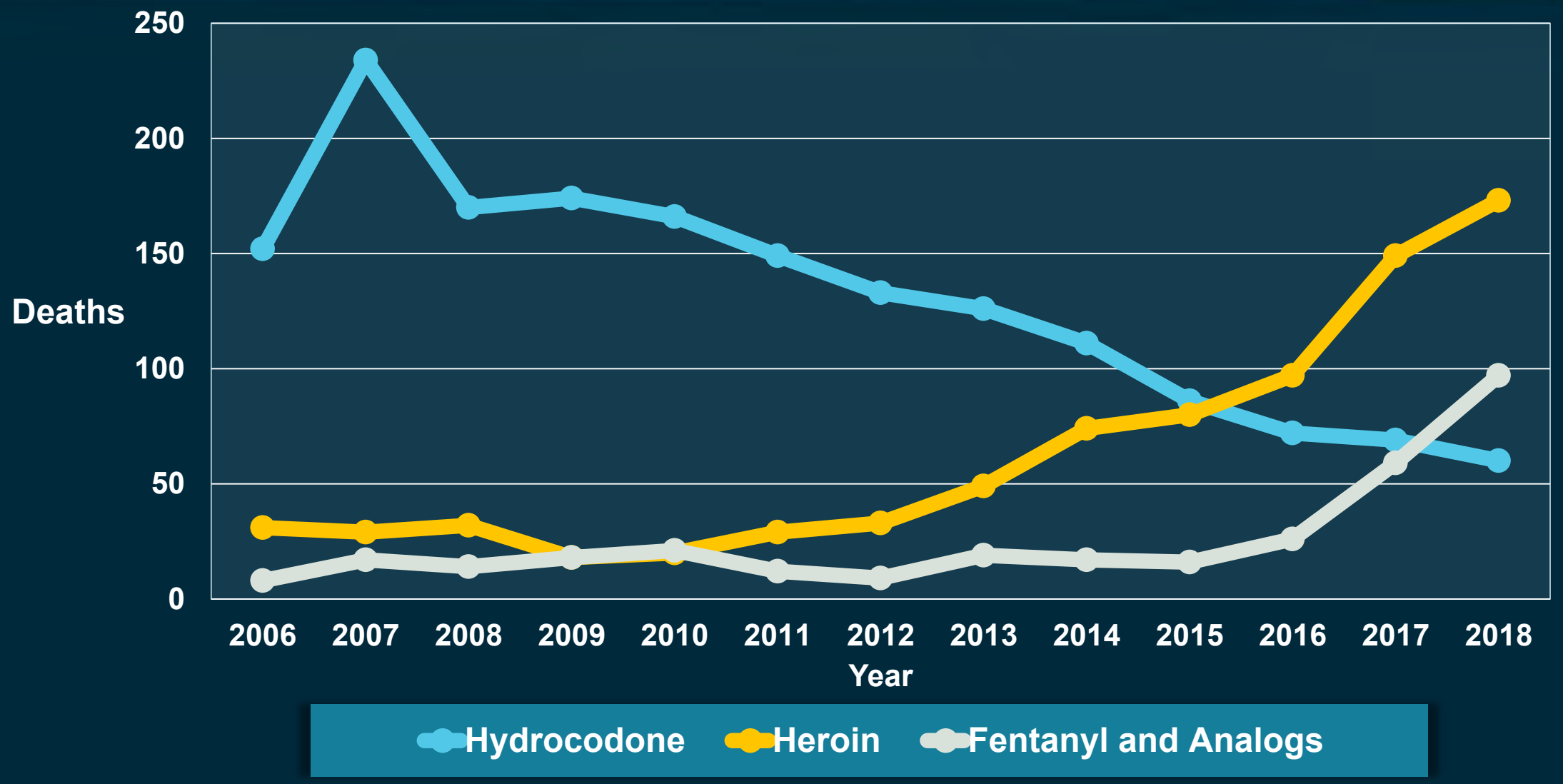


N=321

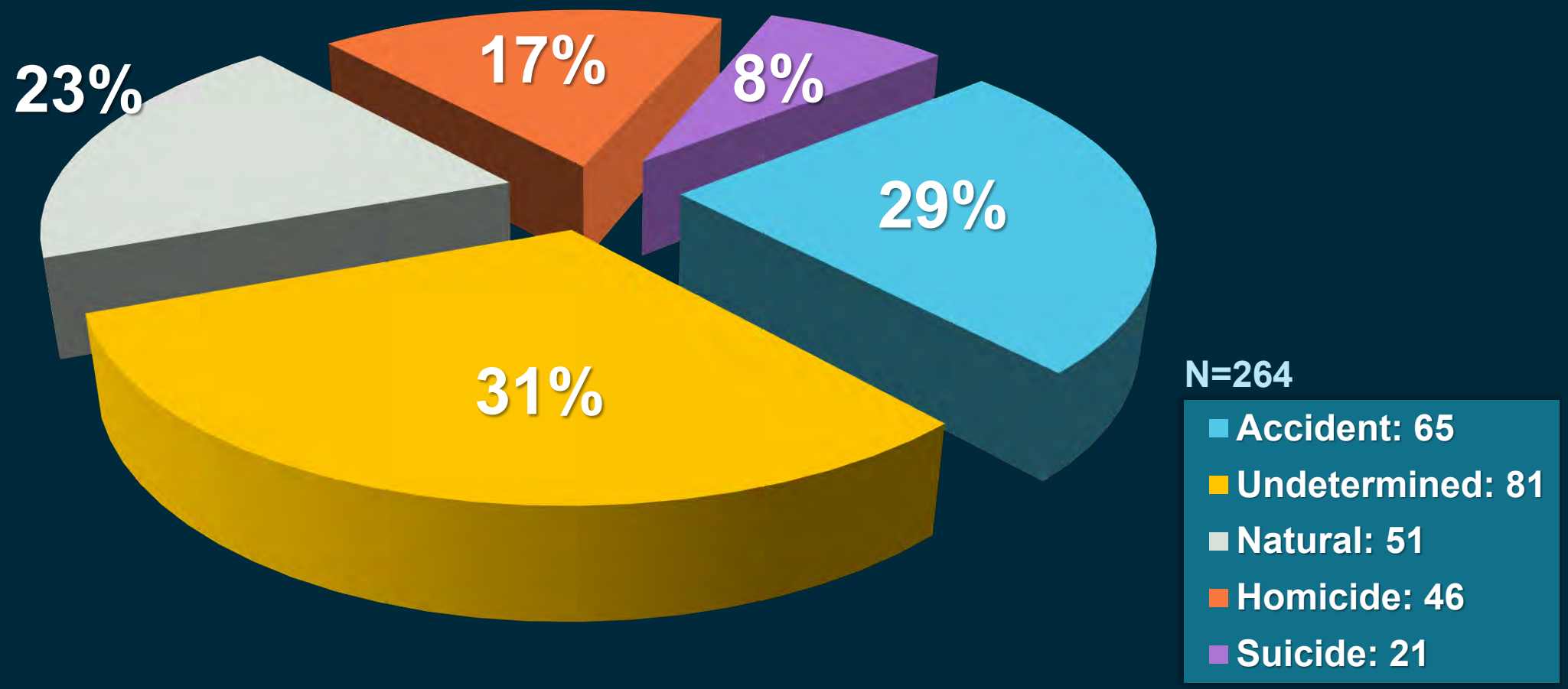
- Heroin
- Fentanyl and Analogs
- Hydrocodone
- Oxycodone
- Methadone
- Morphine
- Codeine

This data does not reflect discrete cases because drugs may be combined within a case.

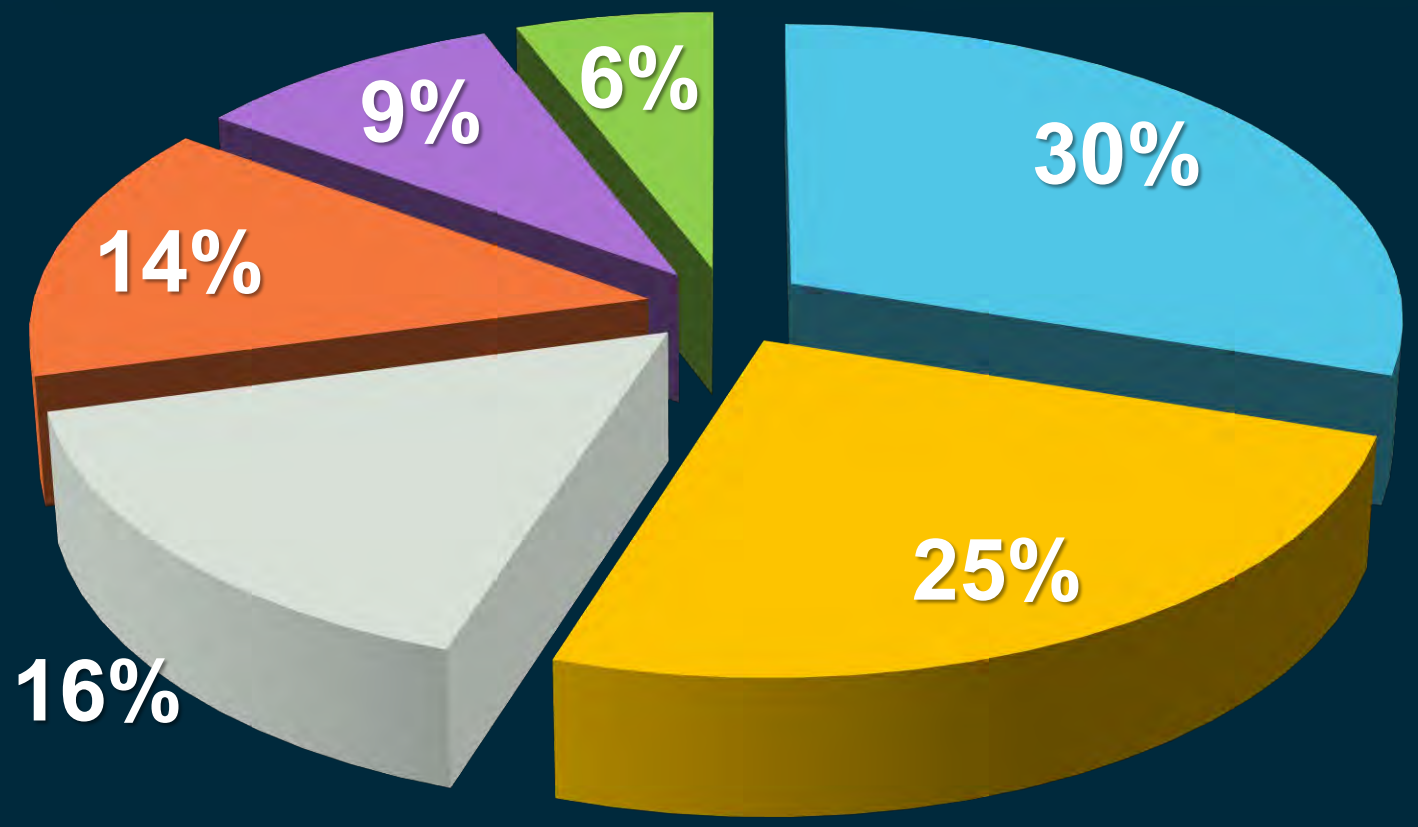
Hydrocodone, Heroin, and Fentanyl in Cause of Death for ML Cases



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



Top Causes of Death in Children (Aged 0 - 17 Years)

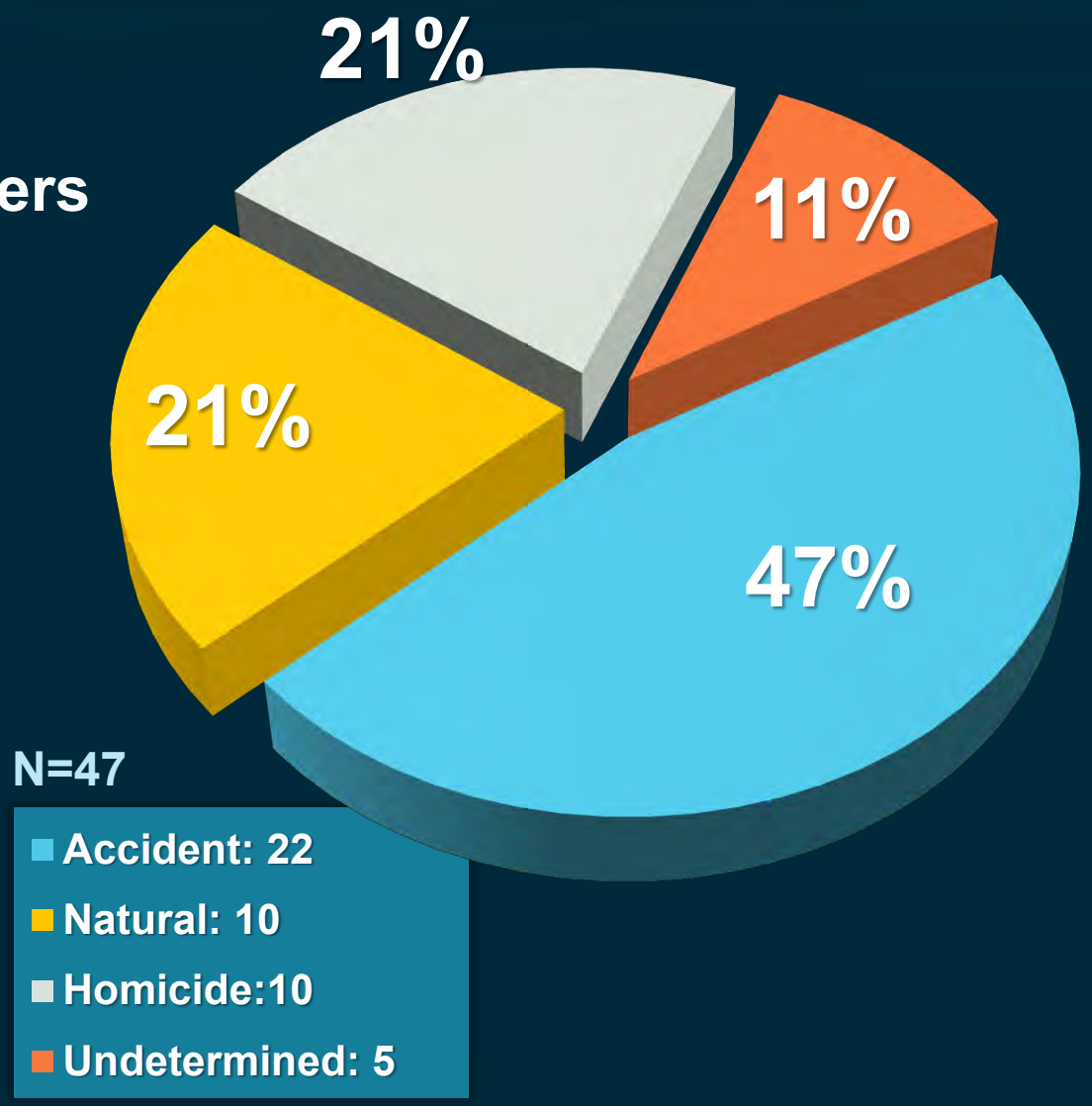


N=120

- Firearm wounds: 36
- MVA: 30
- Blunt force injury, not MVA: 19
- Drowning: 17
- Hanging: 11
- Asphyxia, not due to hanging: 7

Toddler Deaths (Aged 1 - 4 Years)

- Injury Deaths Include:
  - 3 toddlers died in MVA as passengers
  - 10 toddlers drowned in accidents
  - 10 Homicide cases
    - 6 males
    - 4 females

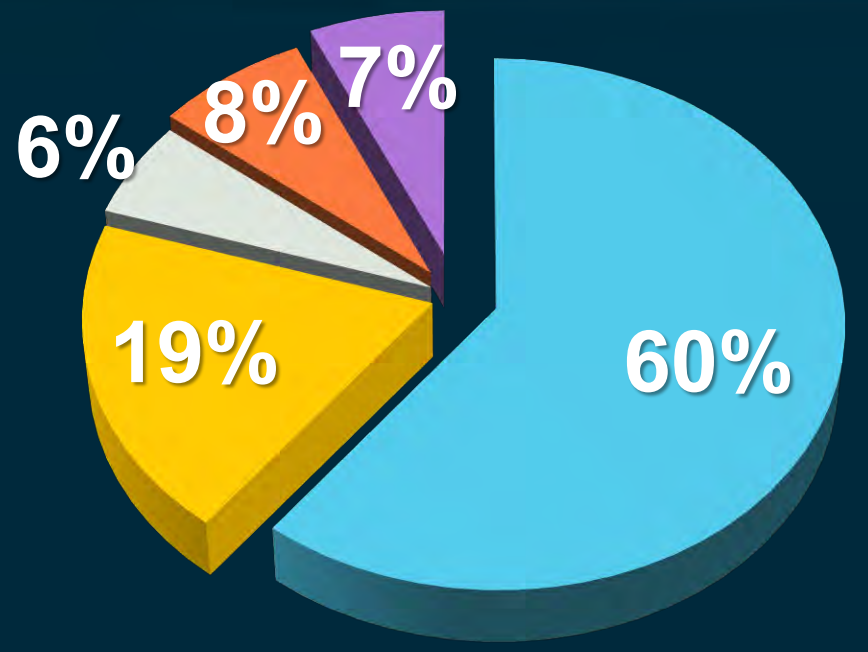


Infant/Fetal Deaths

The birth count for Harris County is estimated to be 71,944 for 2018

(Data provided by Texas Department of State Health Services)

- **119 infant/fetal death cases**
  (aged less than 1 year)
- **72 cases of undetermined manner**
  - **39 were classified as undetermined (co-sleeping)***
- **The cause of death in 13 of the 23 infant deaths with a natural manner was SIDS.**

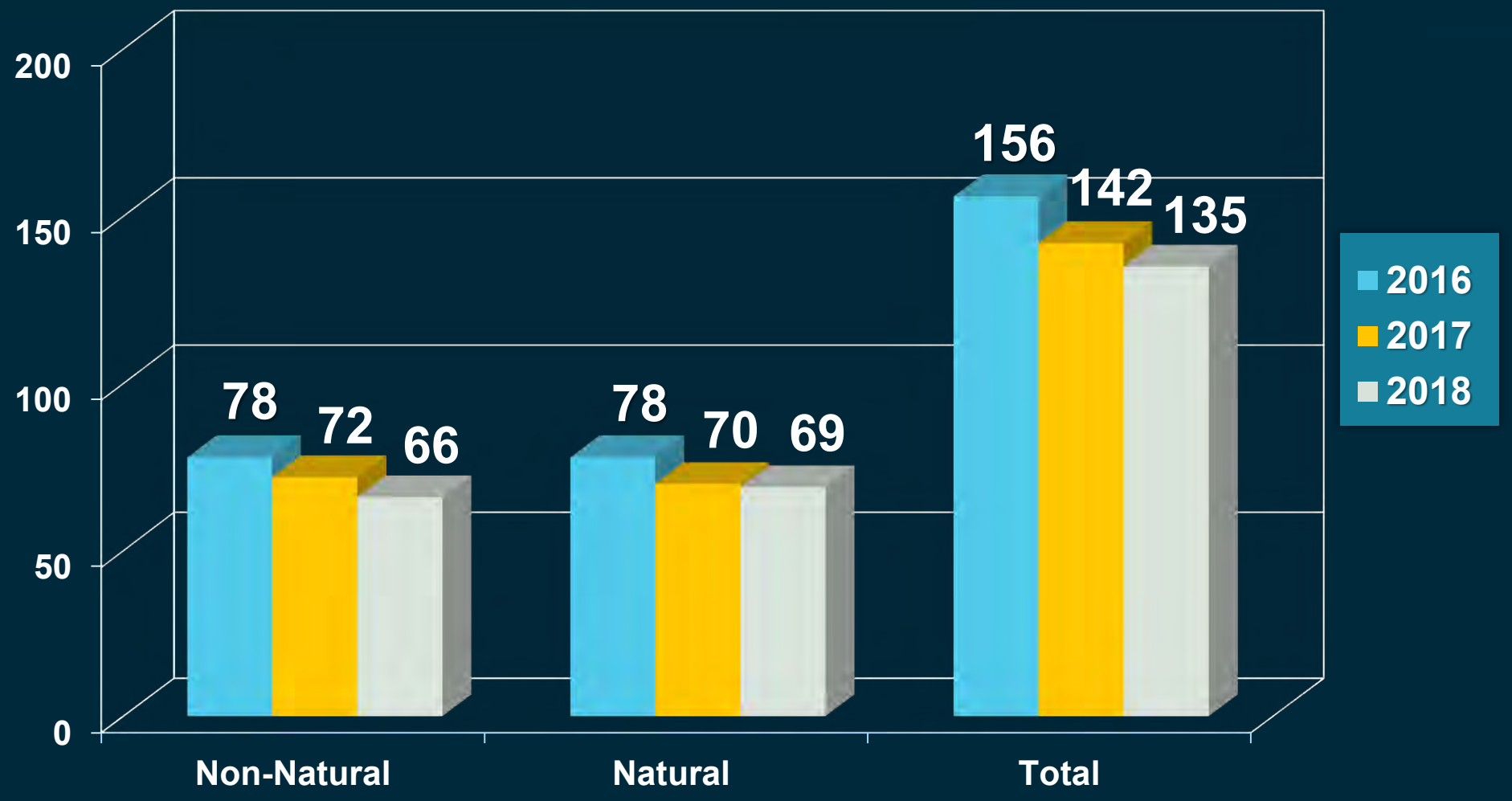


N=119

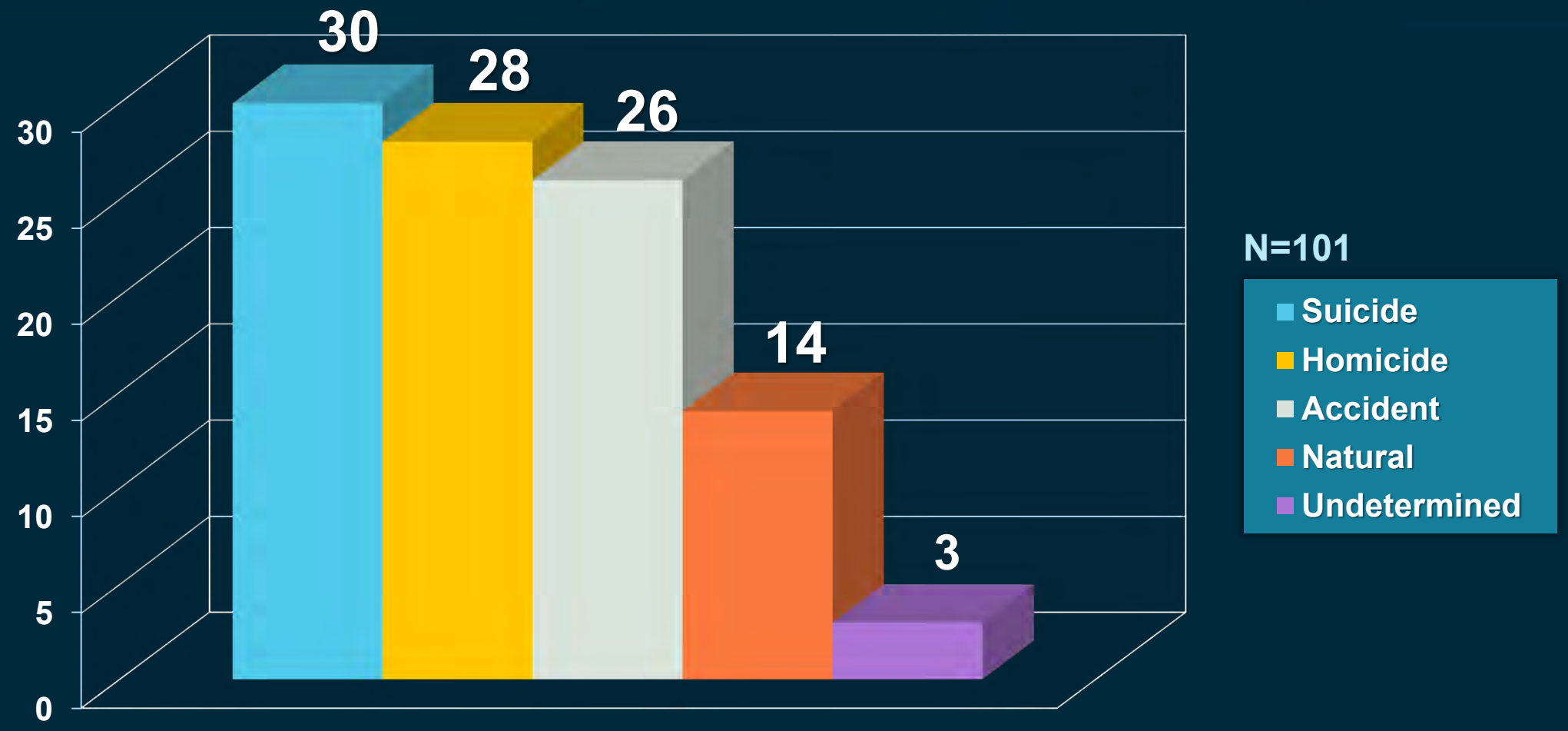
- Undetermined: 72
- Natural: 23
- Fetal: 7
- Accident: 9
- Homicide: 8

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

While at Work Deaths

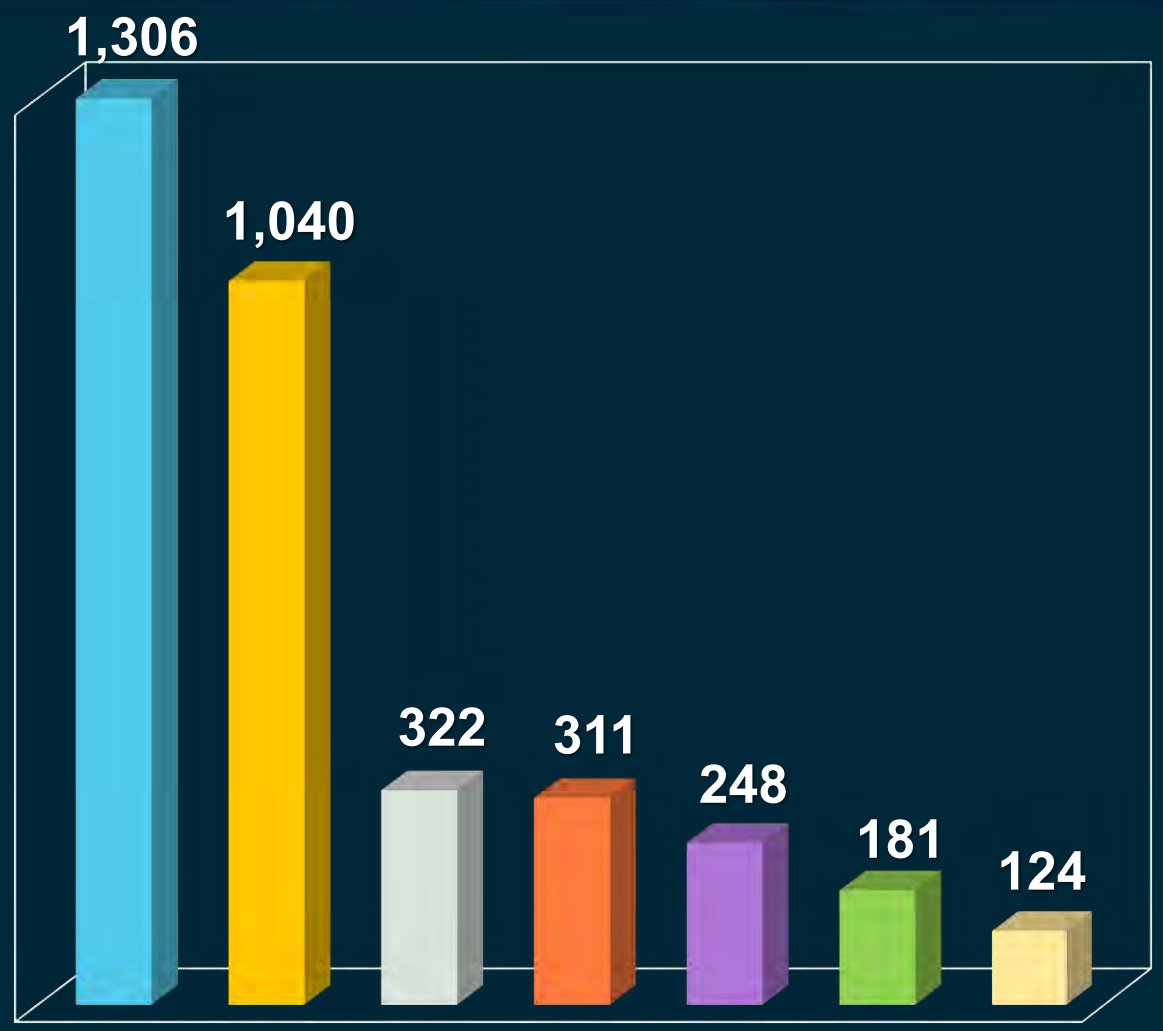


Death During Police Intervention*



** 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



1,886 Natural Deaths in 2018

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

This data does not reflect discrete cases because diseases may be combined within a case.

Obesity

- BMI was calculated for 4,121 decedents aged 13 years or older, at least 60” tall who weighed at least 100 pounds:
  - 1,281 (31%) were obese with a BMI of 30 or greater
  - 1,185 (29%) were overweight with a BMI between 25 and 29
  - The greatest BMI was 83 (598 lbs./71” tall)
  - 27 decedents weighed more than 400 lbs.
  - 1,655 (40%) decedents were of normal weight or underweight

Diabetes

- For 323 decedents, diabetes mellitus was listed as the primary cause (67) or the contributing cause (256) of death
  - 72% were either overweight or obese *Body Mass Index (BMI) = 25+*

Organ & Tissue Donation Summary

- HCIFS maintains agreements with:
  - LifeGift
  - Lions Eye Bank of Texas at Baylor College of Medicine
  - Biograft Transplant Services
- 337 decedents donated organs and/or tissue in 2018.

Forensic Anthropology

- **Staffed by three doctoral-level forensic anthropologists, two of whom are certified as Diplomates by the American Board of Forensic Anthropology**

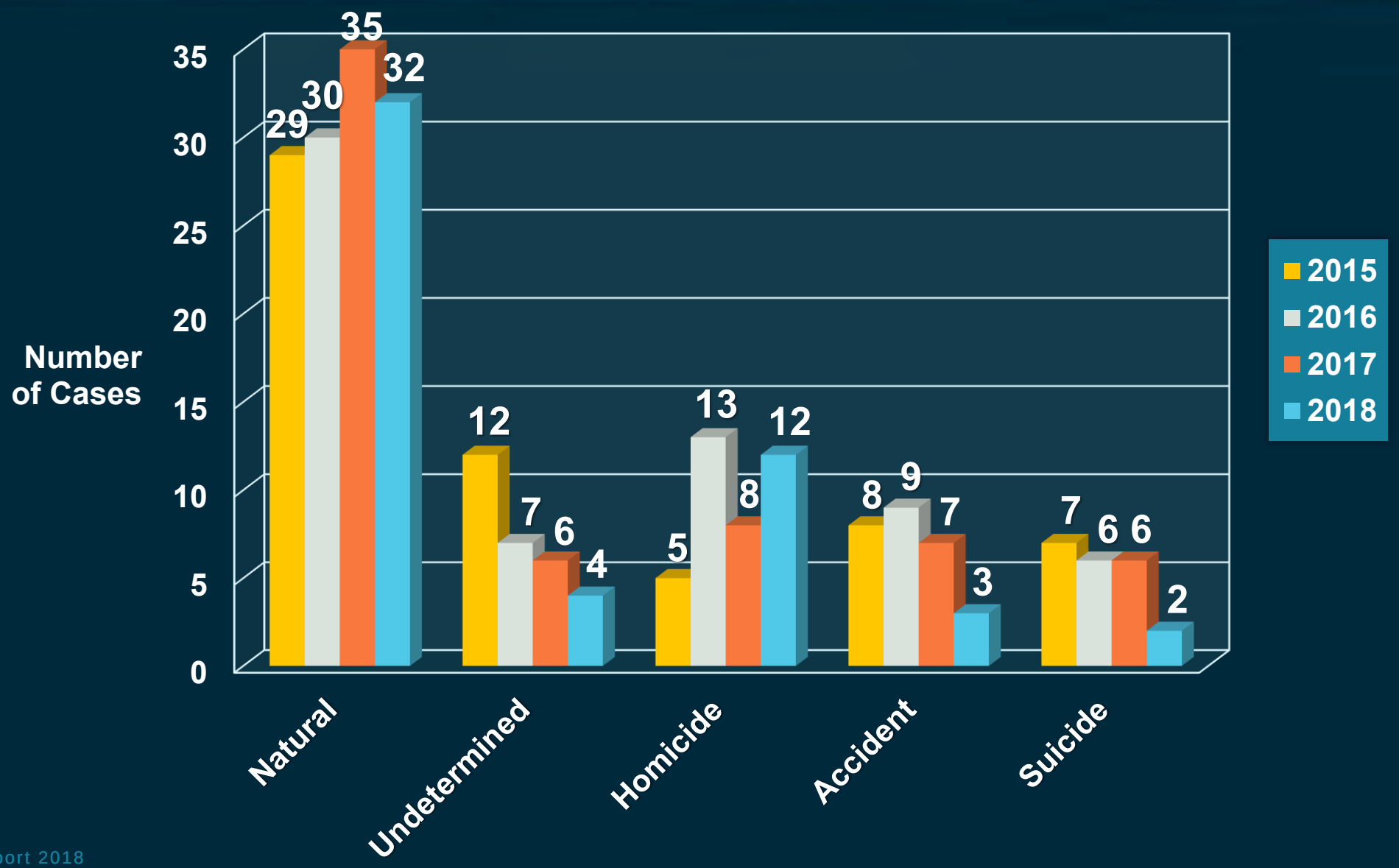
- **2018 case work:**
  - **264 total cases received with written reports provided**
  - **168 autopsy consultations without written reports**
  - **24 death scenes with skeletal recovery**
  - **37 cases of remains determined to be non-human**

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

- 2018 Casework:
  - 54 Cases
  - 27 Scene Collections
  - 13 Autopsy Collections
  - 3 Scene and Autopsy Collections

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

2018 Accomplishments

- **559** standard operating procedures reviewed
- **187** proficiency tests administered
- **401** court orders processed
- **14** internal audits conducted
- **110** internal training sessions provided

Image: *Shau Lin Hon/Slyworks Photography*

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

Image: *Shau Lin Hon/Slyworks Photography*

Statistical Summary

- Cases received: 22,537
- Cases completed: 22,743
- Total Number of submitting agencies: 74
- 70% of laboratory personnel have a professional certification
  - American Board of Criminalistics: 53 analysts
  - American Board of Forensic Toxicology: 16 analysts
  - Association of Firearm and Tool Mark Examiners: 4

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:

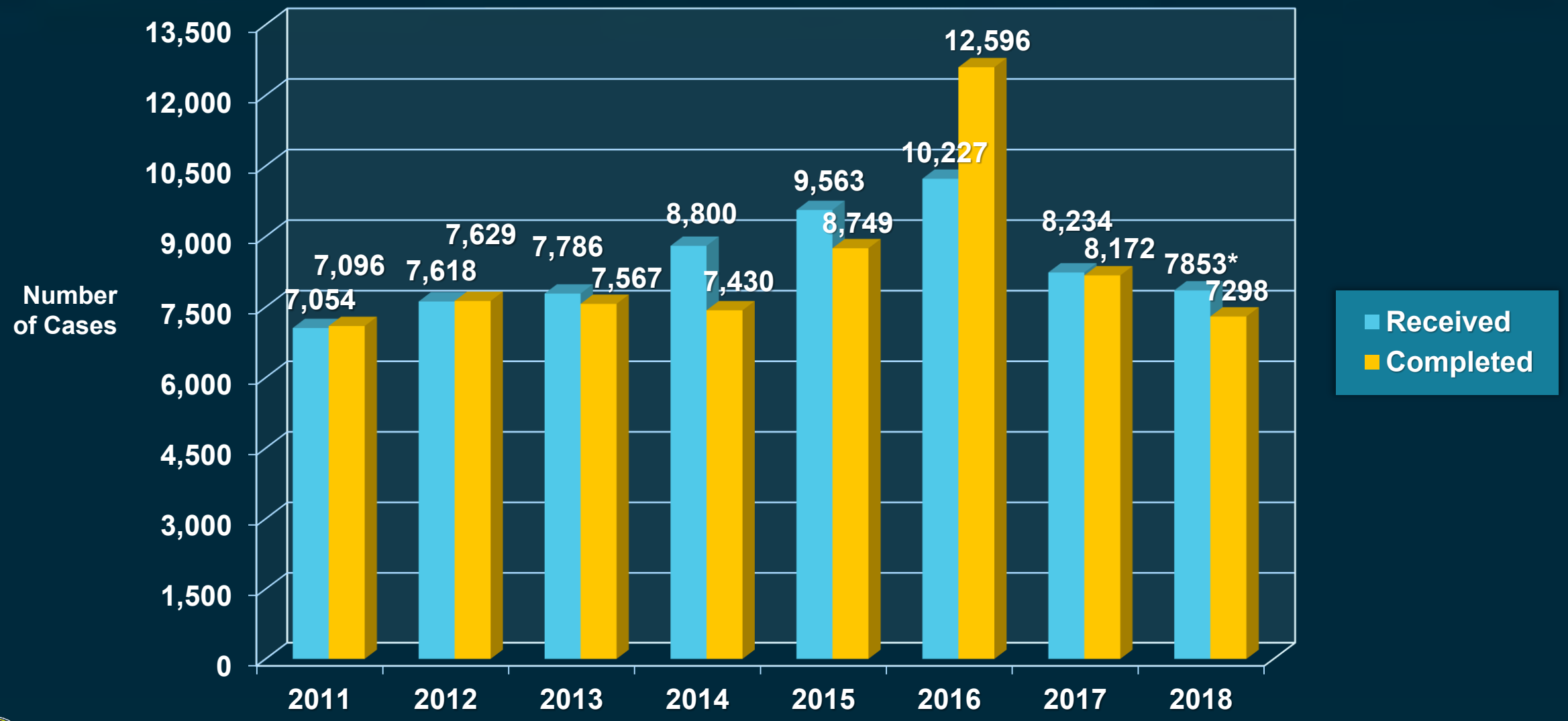
- Plant material
- Powders, tablets, liquids
- Drug paraphernalia

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

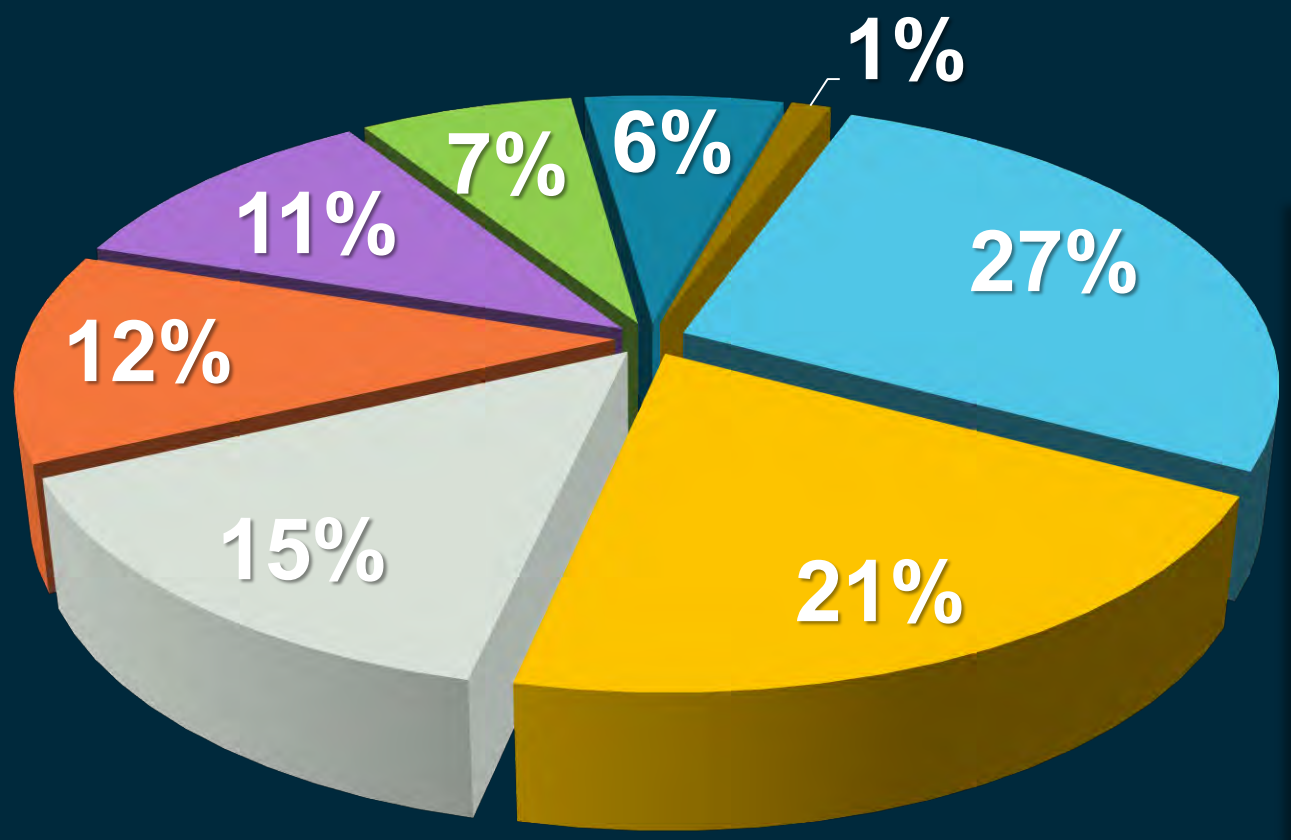
Image: *Shau Lin Hon/Slyworks Photography*

Drug Cases Received and Completed



** Compared to 2017, a 5% decrease in cases received because of changes in law enforcement practices*

Positive Test Results

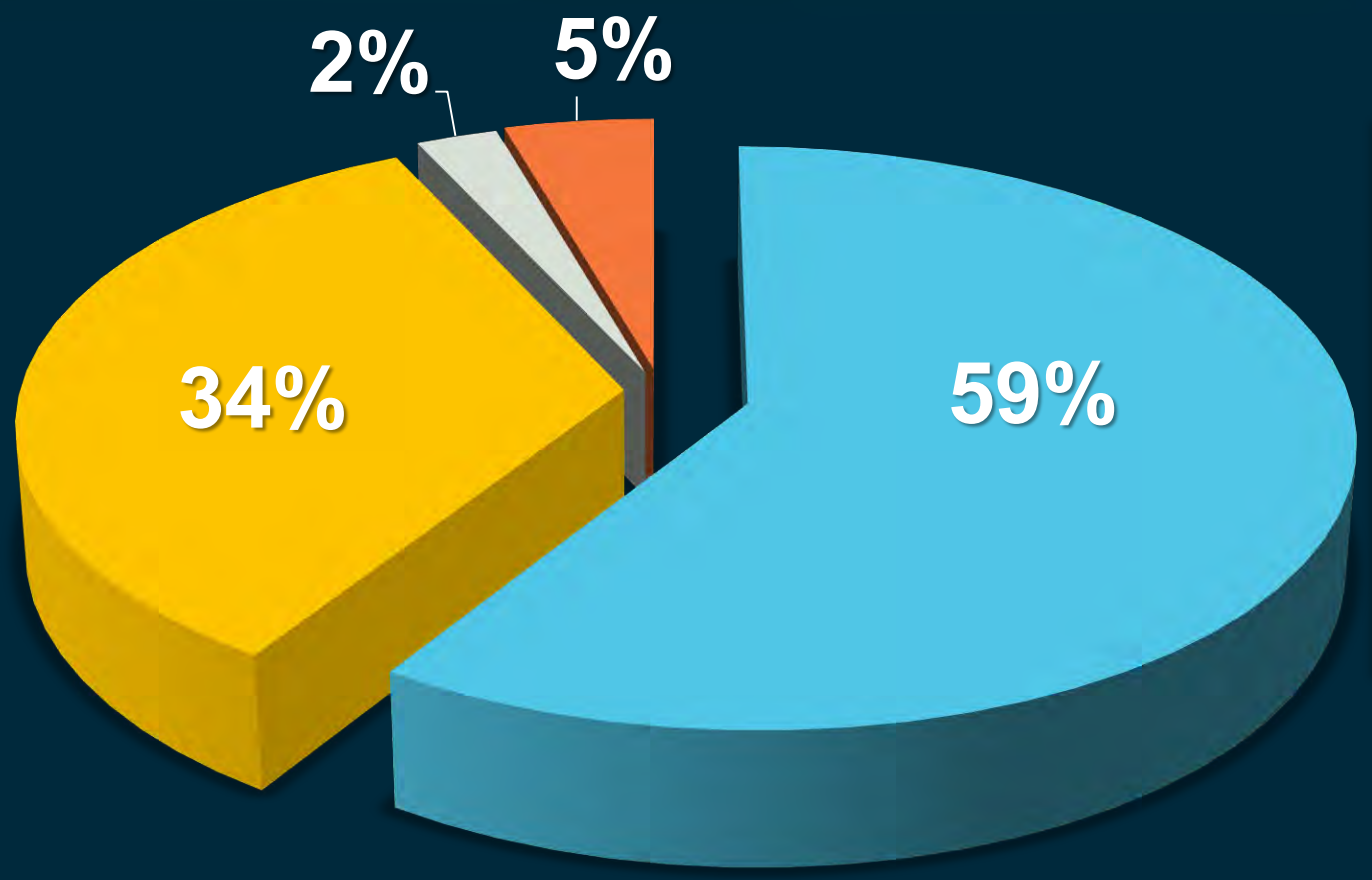


N=14,150

- Non-Controlled Substances: 3,854
- Marihuana/THC: 2,923
- Methamphetamine: 2,067
- Prescription Drugs: 1,703
- Cocaine: 1,529
- Designer Drugs: 977
- Opioids: 914
- Other Contolled Substances: 183

** "Other" relates to a variety of controlled substances not specifically listed as an individual result in the pie chart*

Breakdown of Designer Drug Test Results

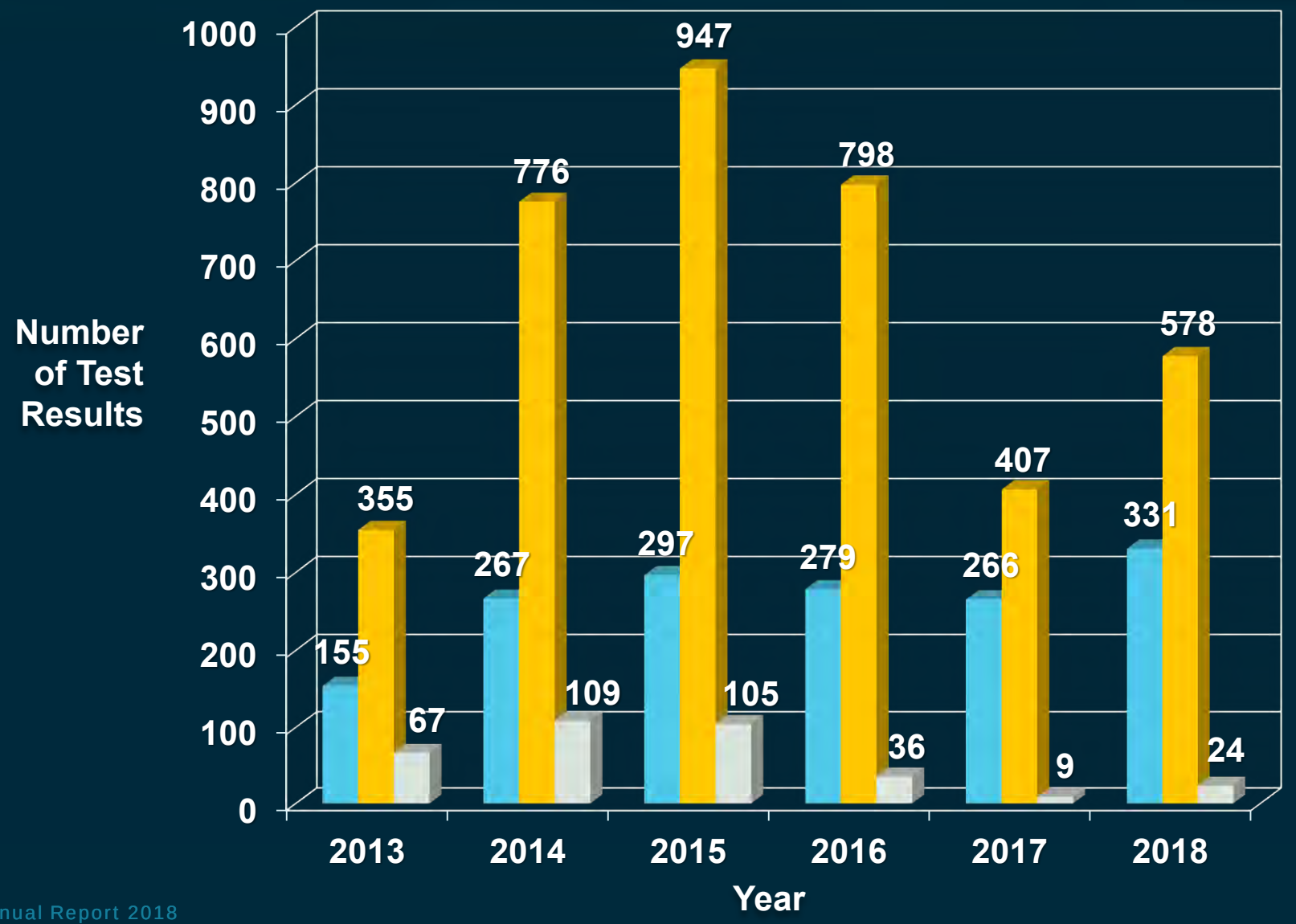


N=977

- Synthetic Marihuana: 578
- Bath Salts: 331
- NBOMe: 24
- Other: 44

This data does not reflect discrete cases because drugs may be combined within a case.

Designer Drug Trends



- Bath Salts (Synthetic Cathinones)
- K2/Spice (Synthetic Cannabinoids)
- NBOMe Hallucinogens

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

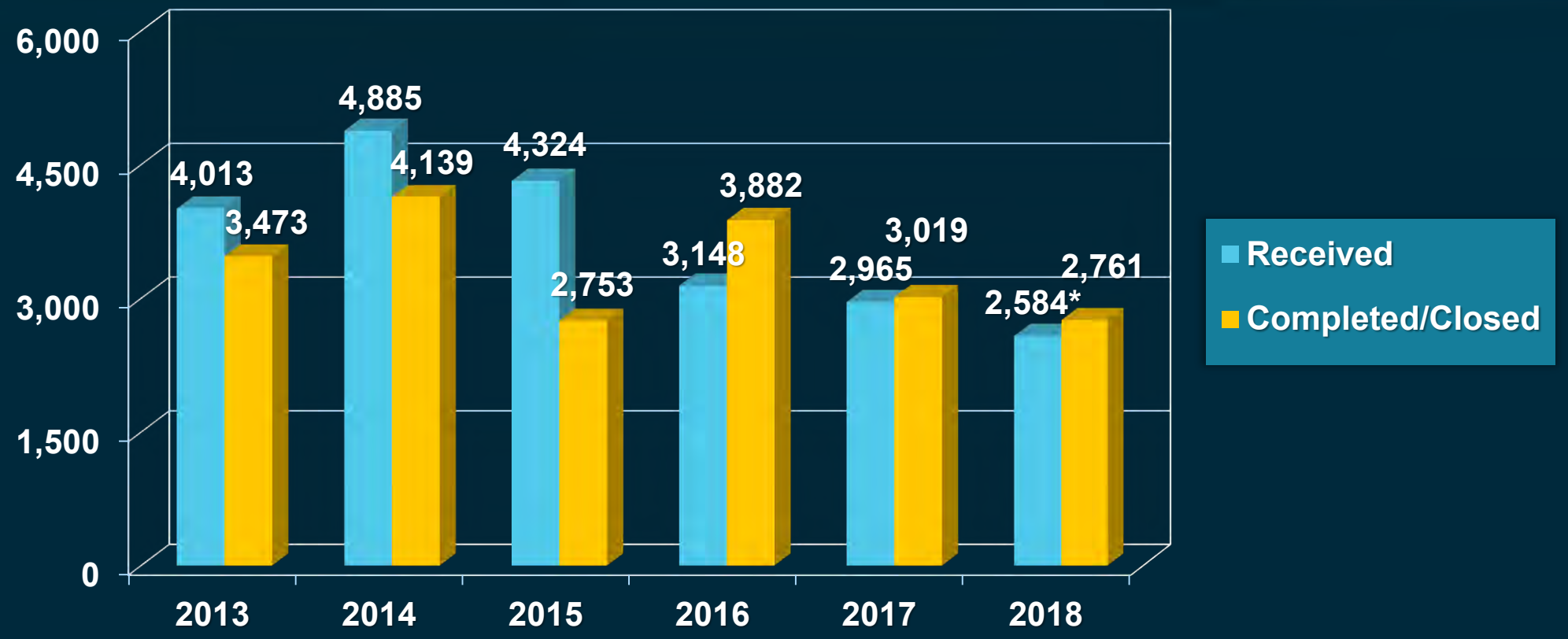
Forensic Genetics Laboratory

Conducts DNA testing primarily for:

- Law enforcement agencies
- HCIFS medical examiners and forensic anthropologists 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.

Image: *Shau Lin Hon/Slyworks Photography*

Cases Received and Completed/Closed

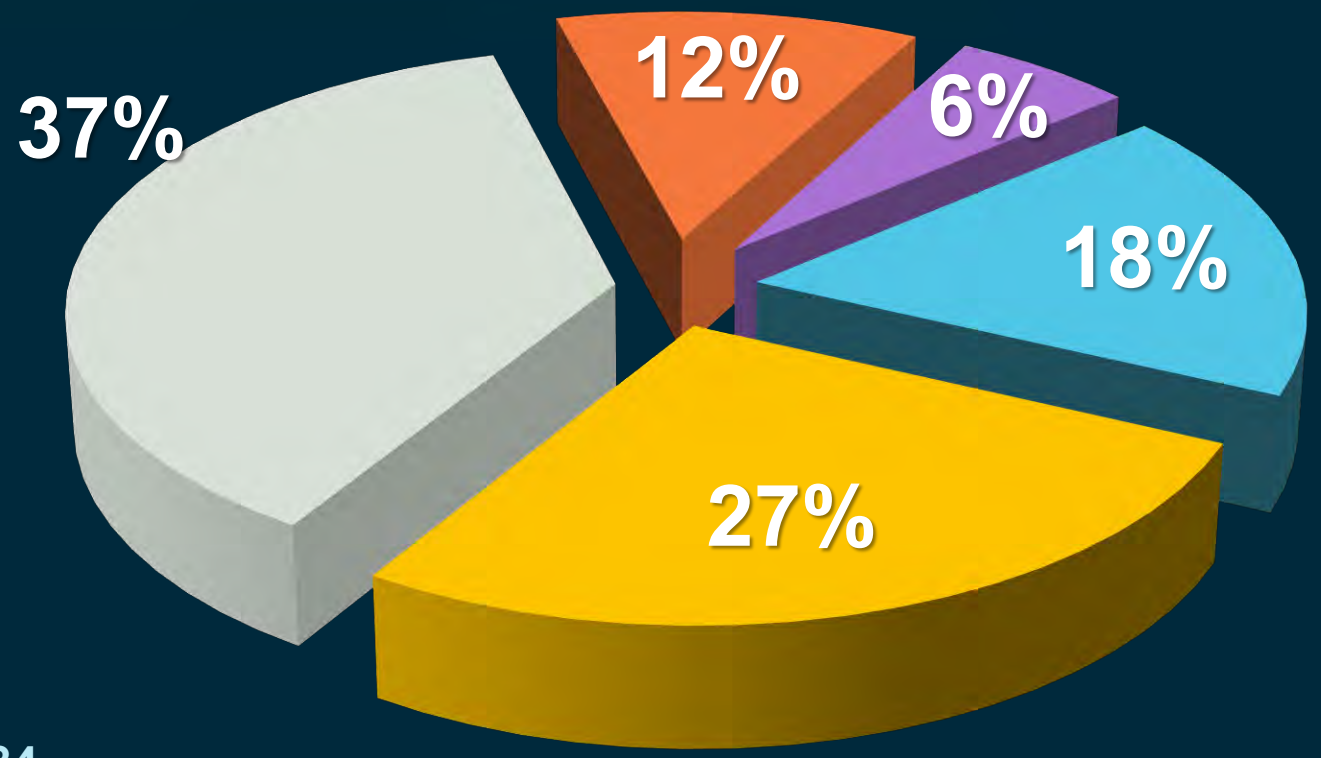


The laboratory paused the collection and analysis of touch DNA property crimes in July 2015 to focus on crimes against persons, which typically require more testing and more complex interpretations.

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

** Compared to 2017, a 13% decrease in cases received (see above)*

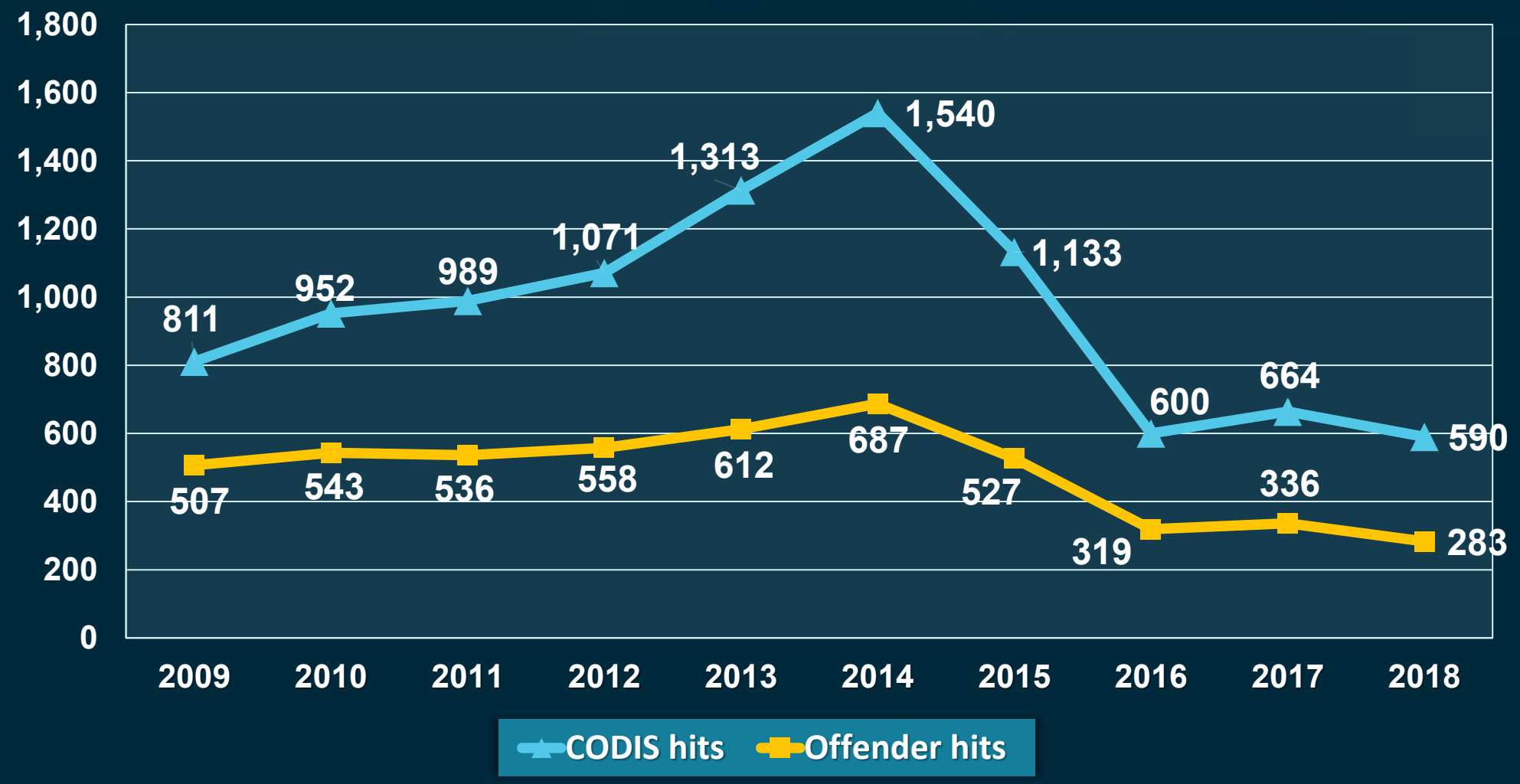
Case Submissions by Type



N=2,584

- Property: 467
- Assault/Robbery: 707
- Sexual Assault: 943
- Homicide/Death Investigation: 316
- Other: 151

CODIS Hits



Drop in CODIS hits reflects a drop in property crimes tested

Trace Evidence DNA Collection Team

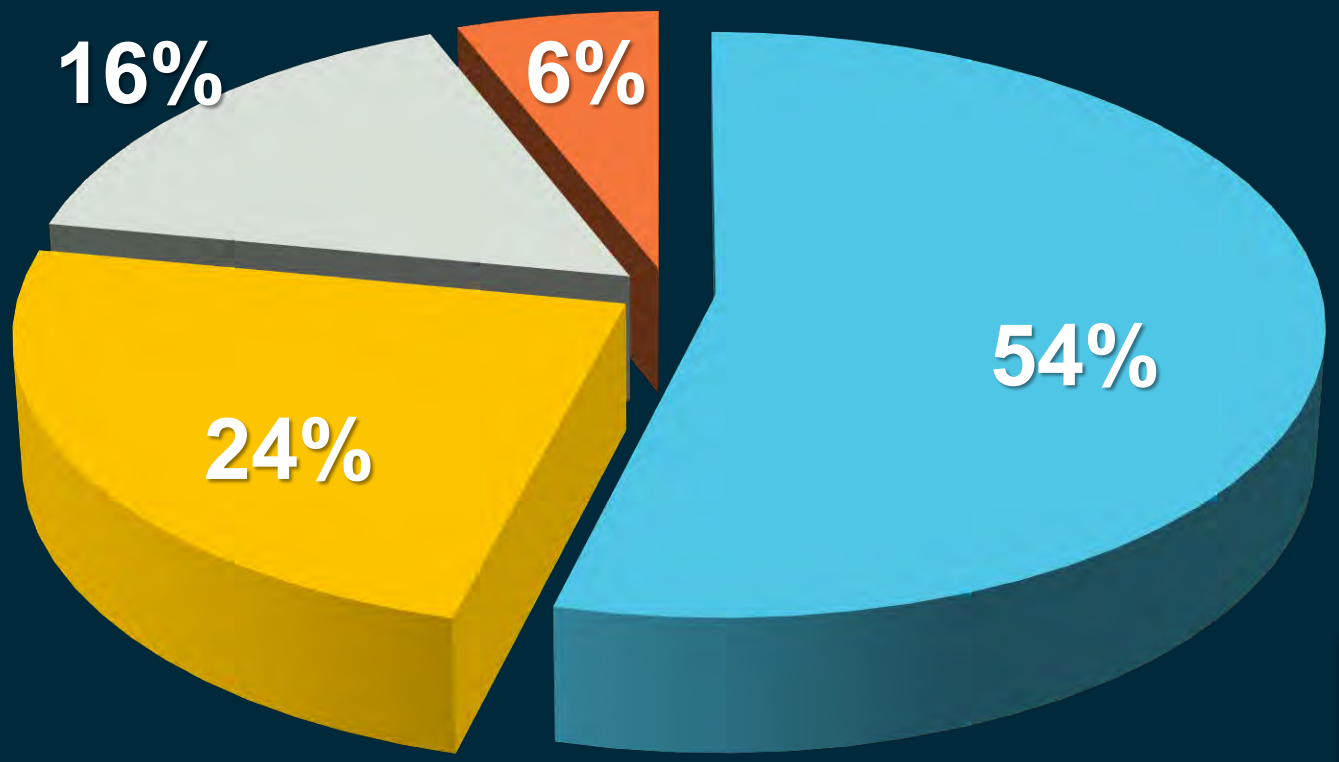
Specialized DNA analysts who attend select death scenes to **collect DNA and trace evidence** from bodies that have been:

- 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.

DNA information assists investigators in **solving crimes.**

Trace DNA Collection: Homicide Cases by Cause of Death



92 collections in 2018

81% (**74**) of the Trace DNA Collection Cases are **Homicides**

N=92

- Gun shot wound(s): 50
- Blunt or Sharp: 22
- Accidental: 15
- Other*: 5

** Other causes include strangulation/asphyxia, homicidal violence, and suicide.*

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

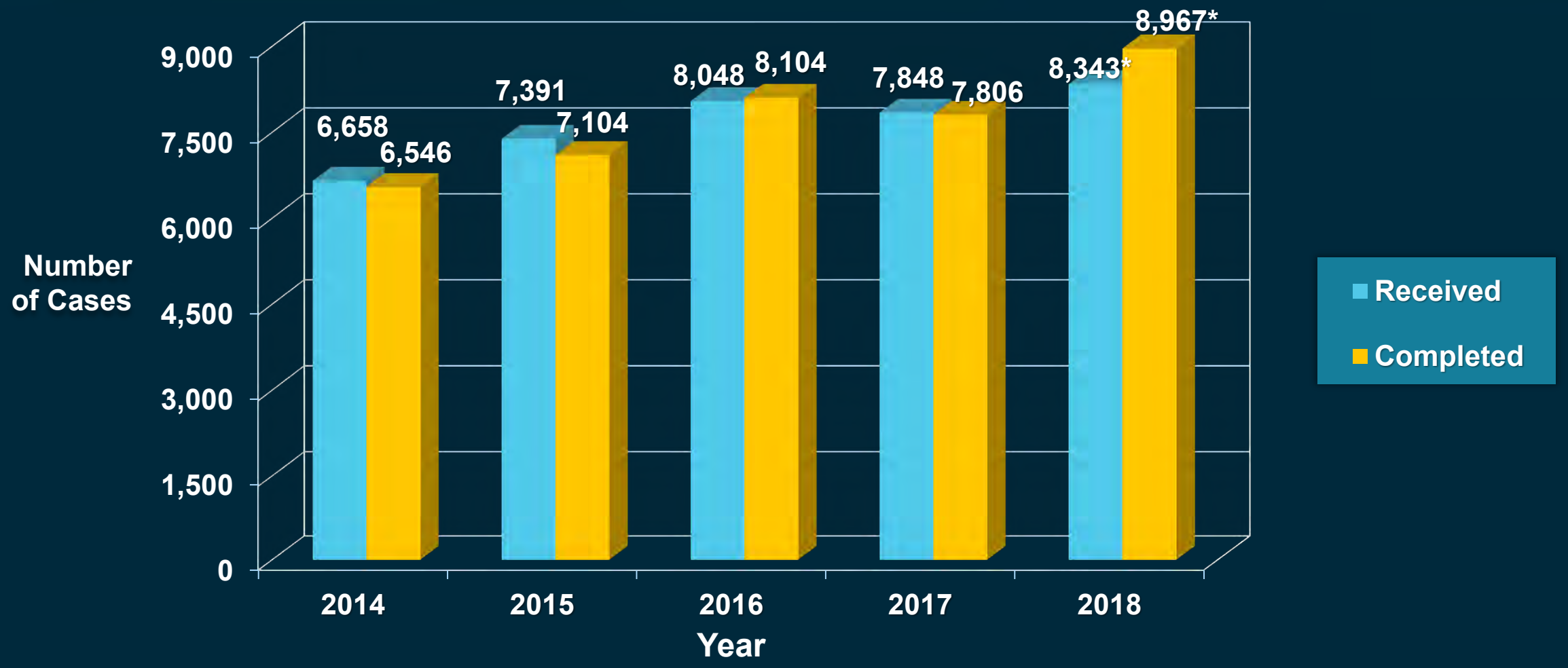
Analyzes **biological evidence** submitted by the HCIFS Medical Examiner Service and law enforcement agencies in Harris County for:

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

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

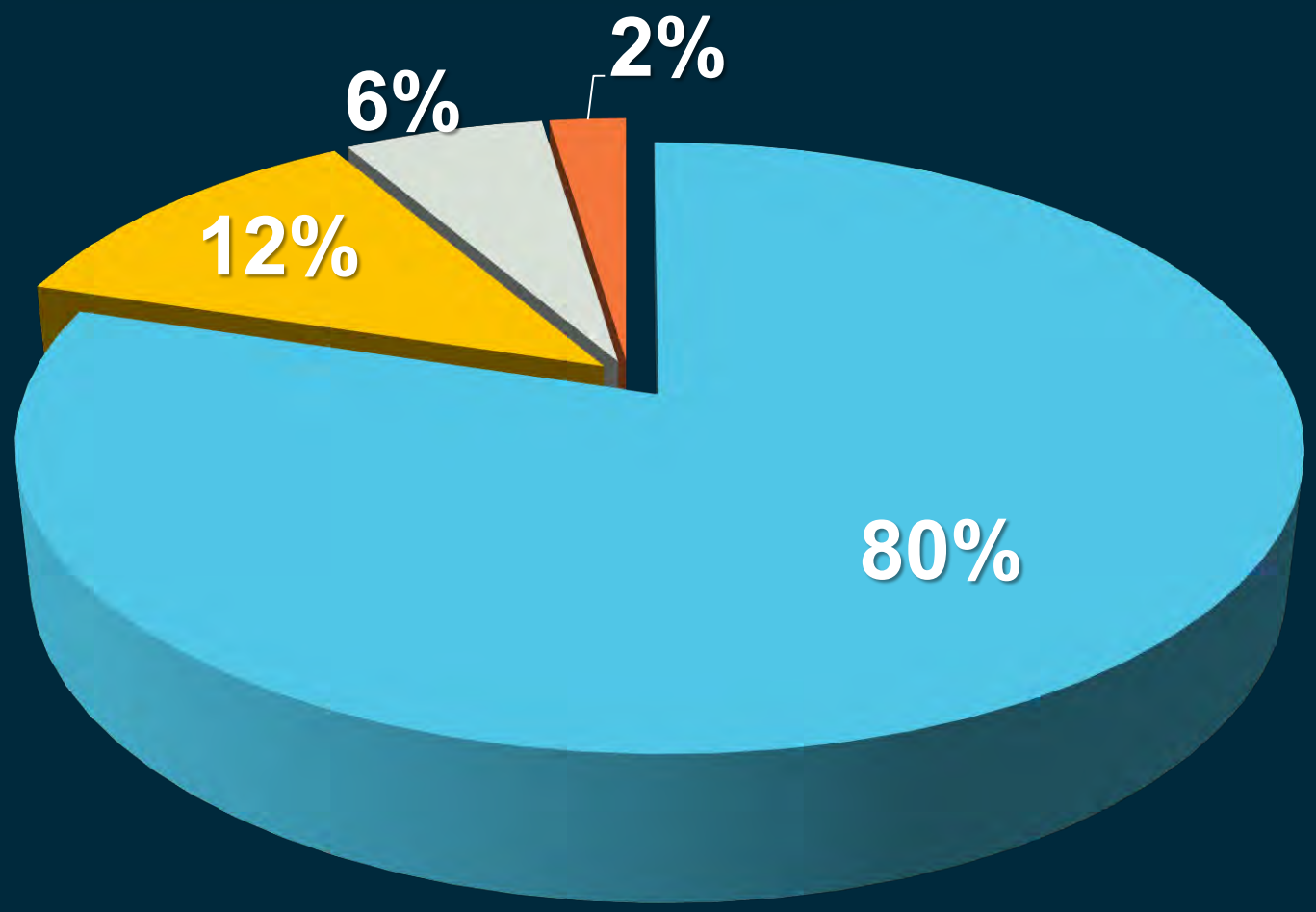
Image: *Shau Lin Hon/Slyworks Photography*

Cases Received and Completed



** Compared to 2017, a 6% increase in cases received and a 13% increase in cases completed*

DWI Case Results

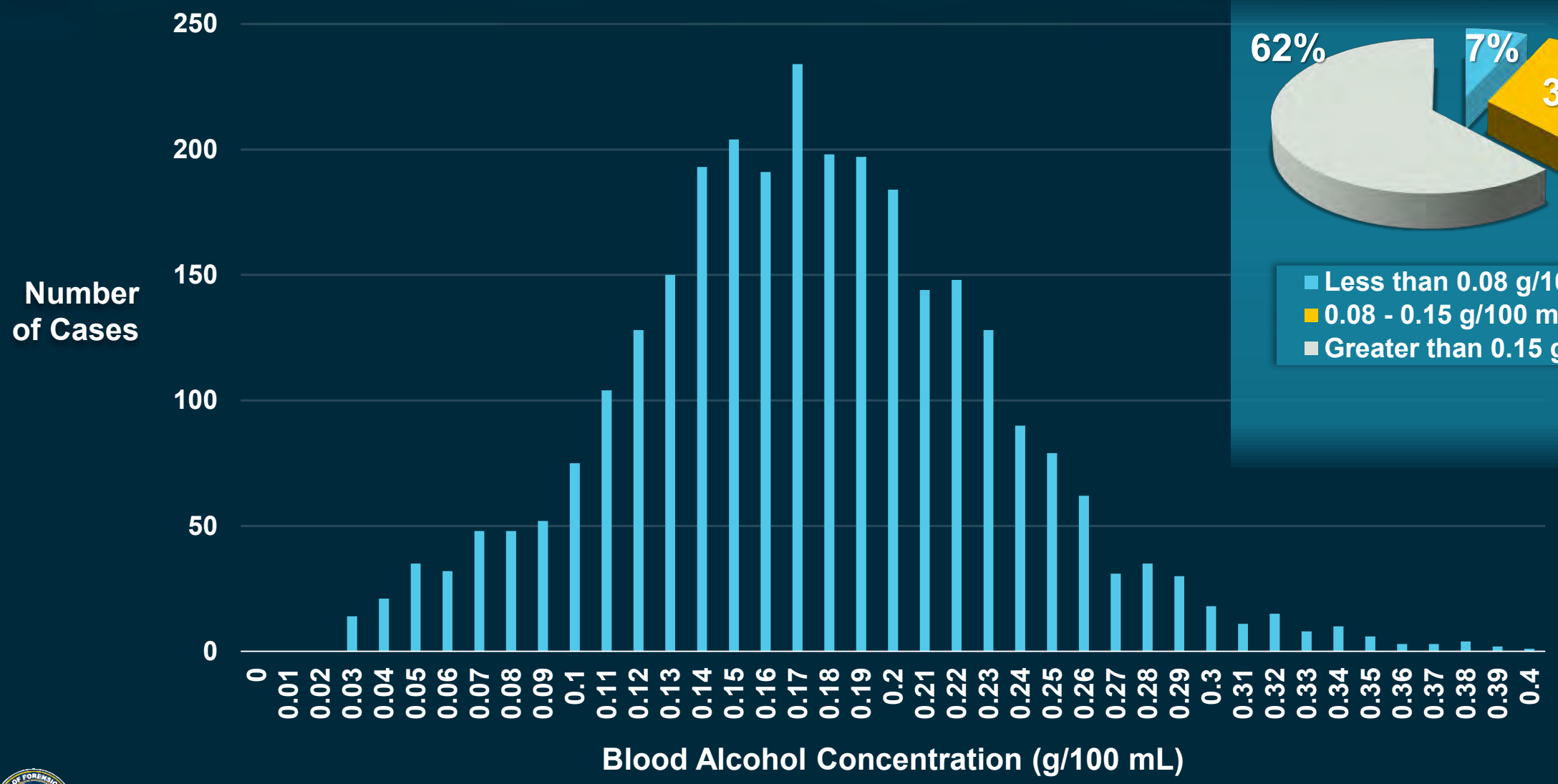


N=3,344

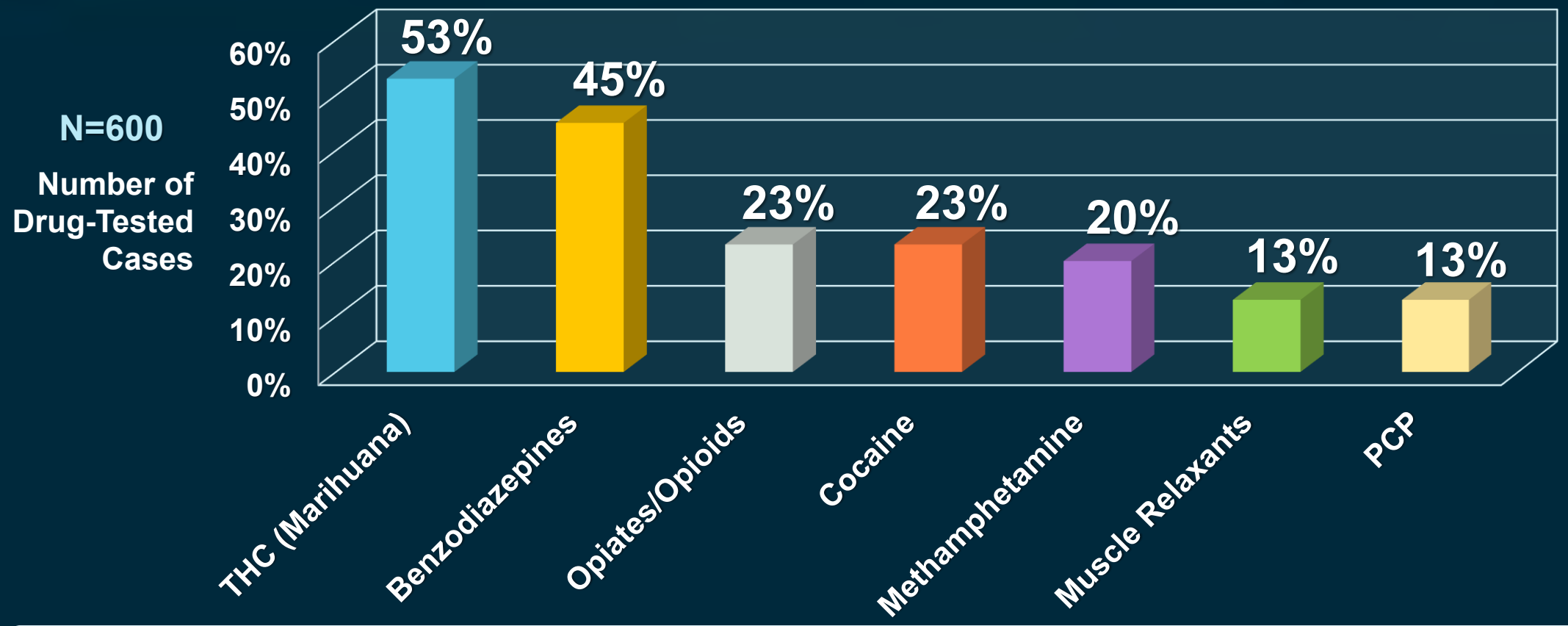
- Alcohol Positive Only*: 2,666
- Drug Positive Only: 398
- Alcohol and Drug Positive: 202
- Negative: 78

** Alcohol Positive Only is a case with any ethanol concentration and cannot contain drugs.*

DWI Blood Alcohol Concentrations



Drug Prevalence in Drug-Tested 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

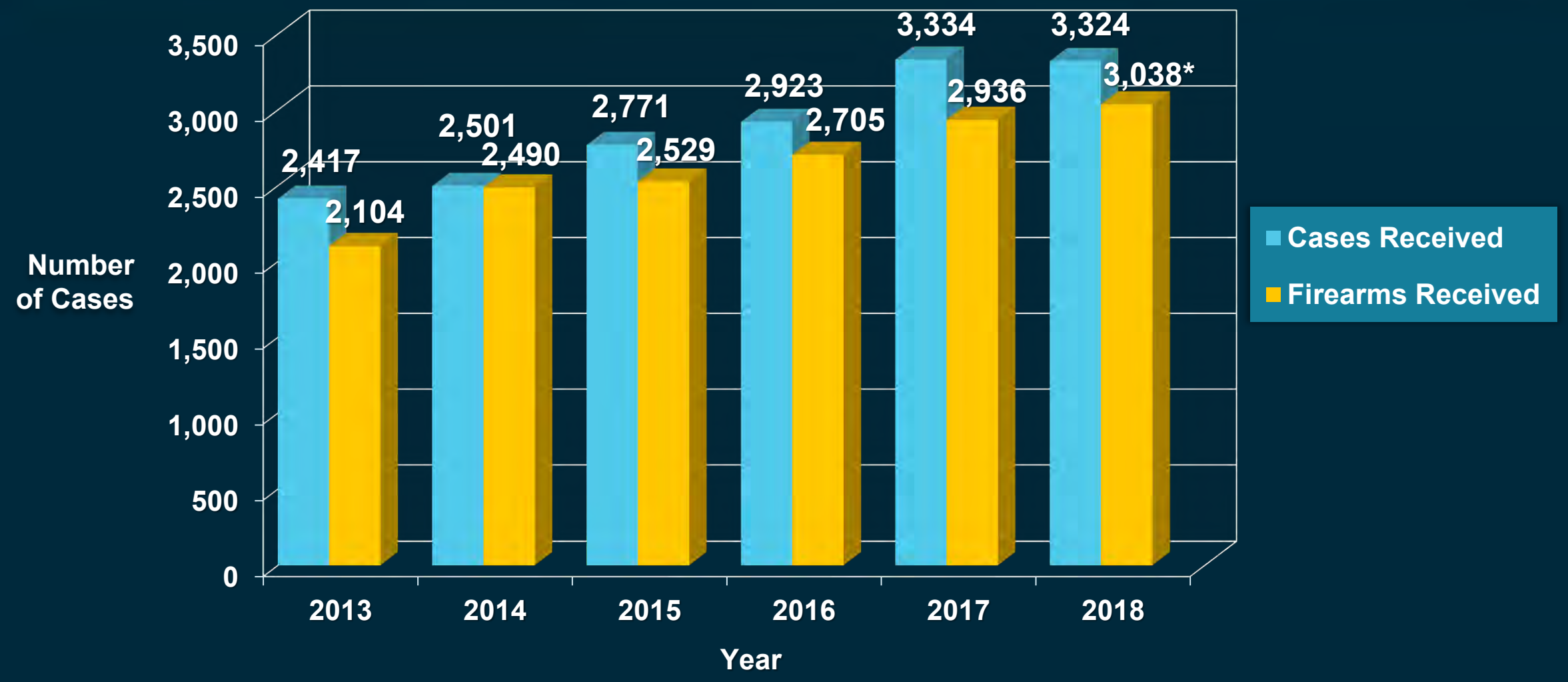
Analysis in the three forensic sub-disciplines of Gunshot Residue Analysis, Fire Debris Analysis, and Automotive Paint Analysis

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

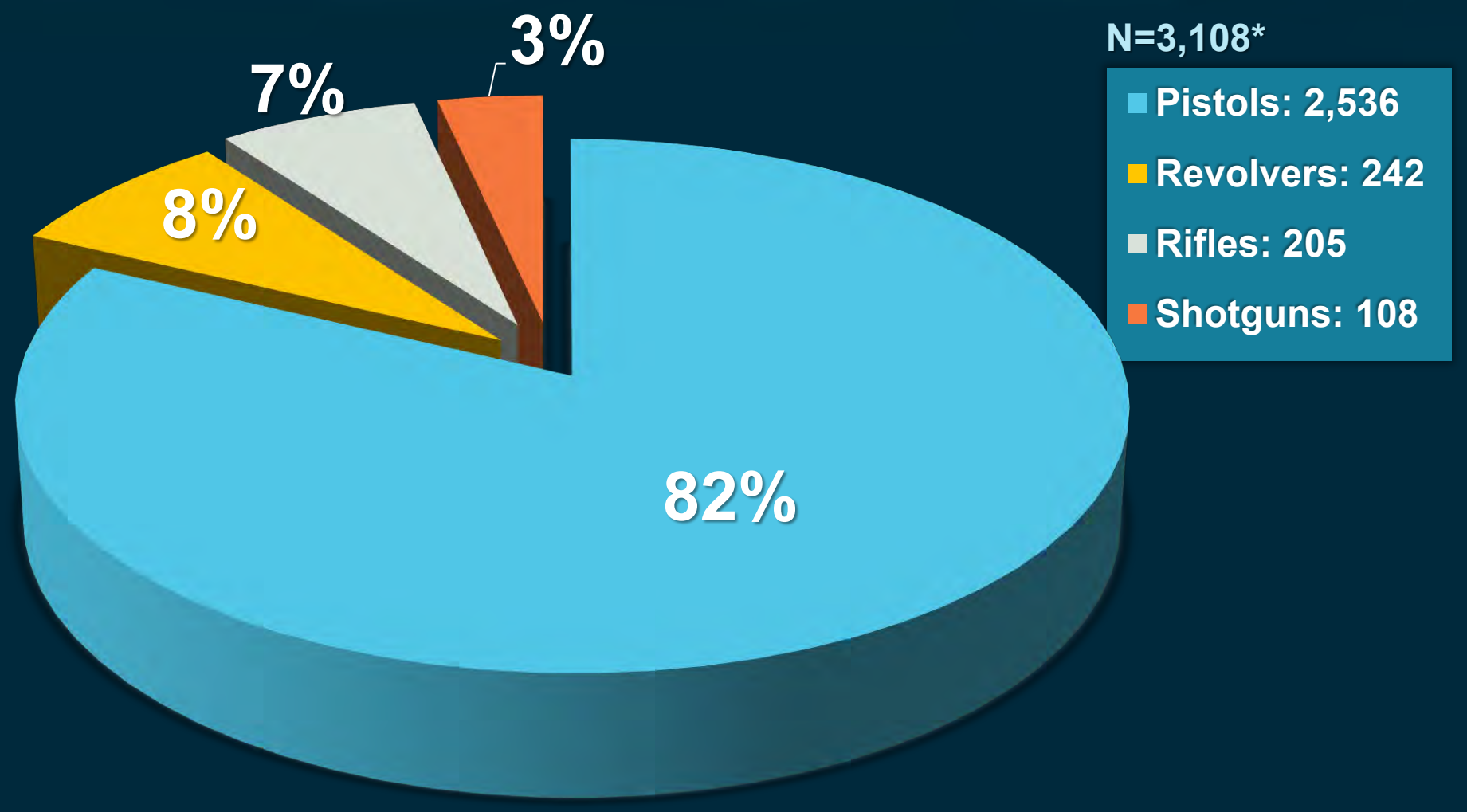
Image: *Shau Lin Hon/Slyworks Photography*

Firearms Identification Casework



** Compared to 2017, a 4% increase in firearms received*

Firearms Cases Completed



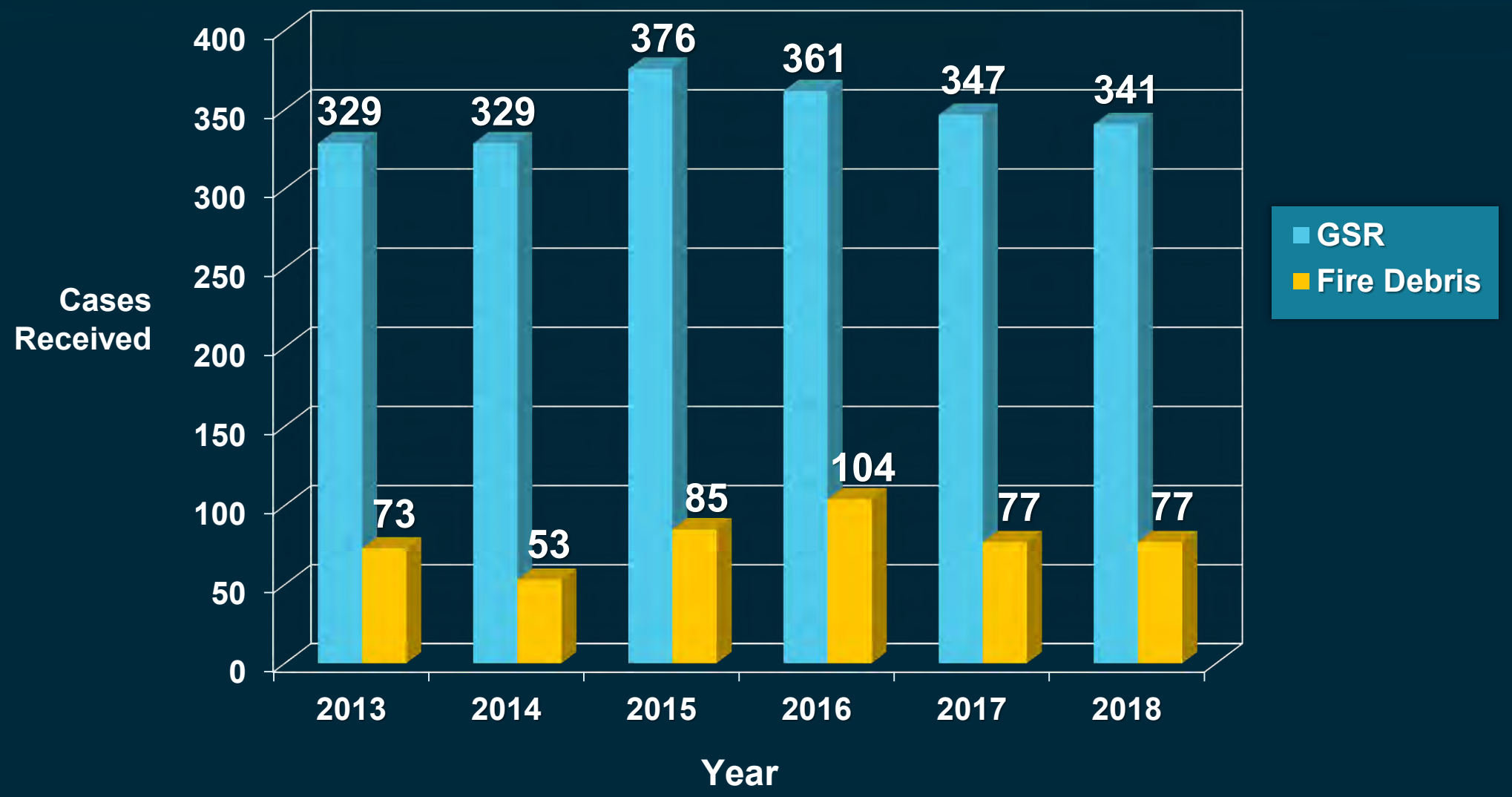
** There are 17 cases with other types of firearms such as air guns, BB guns, and Derringers.*

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 2017, a 2% decrease in cases received for GSR cases (15 paint analysis cases received during 2018, which was a new case type introduced by Trace Evidence section starting late 2017).

Published Scientific Work

20 published articles in peer-reviewed journals

Publications by HCIFS Doctors and Scientists

	Authors	Title	Publication
1	**Antinick T.C.** and Foran D.R.	Intra- and Inter-Element Variability in Mitochondrial and Nuclear DNA from Fresh and Environmentally Exposed Skeletal Remains.	*J Forensic Sci doi: 10.1111/1556-4029. 13843. Epub 2018 June 25.*
2	**Bakota E.L.**, **Samms WC**, **Gray T.R.**, **Oleske D.A.**, **Hines M.O.**	Case Reports of Fatalities Involving Tianeptine in the United States.	*J Anal Toxicol. 2018 Sep 1;42(7):503-509. doi: 10.1093/jat/bky023.*
3	**Drake, S.A.**, **Wolf, D.A.**, Yang, Y., Harper, S., Ross, J., Reynolds, T., and Giardino, E.	A descriptive and geospatial analysis of environmental factors attributing to sudden unexpected infant death.	*American Journal of Forensic Medicine and Pathology (2018) in press. PMID: 30570520*
4	**Drake, S.A.**, Pickens, S., **Wolf, D.A.**, and Thimsen, K.	Improving medicolegal death investigative gaps of fatal elder abuse.	*Journal of Elder Abuse & Neglect (2018) 30:1-10. PMID: 30375941*
5	**Drake, S.A.**, Holcomb, J.B., Yang, Y., Thetford, C., Myers, L., Brock, M., **Wolf, D.A.**, Cron, S., Persse, D., McCarthy, J., Kao, L., Todd, S.R., Naik-Mathuria, B.J., Cox, C., Kitagowa, R., **Sandberg, G.**, and Wade, C.E.	Establishing a regional trauma preventable/potentially preventable death rate.	*Annals of Surgery (2018) July, 31, 2018. PMID 30067544*
6	**Wolf, D.A.**	Letter to the Editor, in Response to: Laposata M. A new kind of autopsy for 21st-century medicine.	*Archives of Pathology (2018) 142(2):158. PMID 29373851*
7	Andronowski JM, **Crowder C.M.**	Bone Area Histomorphometry.	*Journal of Forensic Sciences. (2018). DOI: 10.1111/1556-4029.13815*
8	**Fleischman J.M.**	Sites of Violence, Sites of Memory: Linking Tuol Sleng (S-21) and Choeung Ek through Archival and Skeletal Evidence.	*Mémoires en jeu (Memories at Stake) 6:76-80.*

Publications by HCIFS Doctors and Scientists

	Authors	Title	Publication
9	**Fleischman J.M.**, Prak S, Voeun V, Ros S.	Khmer Rouge Regime Massacres: Skeletal Evidence of Violent Trauma in Cambodia.	*In: Anderson C, Martin D, editors. Massacres: Bioarchaeology and Forensic Anthropology Approaches. Gainesville: University of Florida Press, 116-135.*
10	Ambrose CG, **Soto Martinez M.E.**, Bi X, Deaver J, Kuzawa C, Schwartz L, Dawson B, Bachim A, Polak U, Lee B, **Crowder C.**	Mechanical Properties of Infant Bone.	*Bone. (2018) 131:151-160.*
11	Andranowski JM, **Crowder C**, **Soto Martinez M.E.**	Recent Advancements in the Analysis of Bone Microstructure: New Dimensions in Forensic Anthropology.	*Forensic Sciences Research. (2018) 3(4): 278-293.*
12	Love JC, **Soto Martinez M.E.**	Theoretical foundation of child abuse.	*In: C. Clifford Boyd Jr. and Donna C. Boyd, editors. Forensic Anthropology: Theoretical Framework and Scientific Basis. John Wiley & Sons Ltd.*
13	**Sanford, Michelle. R.**, **Torres, Mirna**, and **Ross, Jennifer**	Unexpected Human Fatality Associated with Bed Bug (Hemiptera: Cimicidae) Heat Treatment.	*J Forensic Sci. (2018). doi:10.1111/1556-4029.13883*
14	**Blessing M.M.**, Blackburn P.R., Balcom J.R., Krishnan C., Harrod V.L., Zimmermann M.T., Barr Fritcher E.G., Zysk C.D., Jackson R.A., Nair A.A., Jenkins R.B., Halling K.C., Kipp B.R., Ida C.M.	Novel BRAF alteration in desmoplastic infantile ganglioglioma with response to targeted therapy.	*Acta Neuropathol Commun. 2018 Nov 5;6(1):118; PMID: 30396366*
15	Lin P.T., **Blessing M.M.**	The characteristics of all-terrain vehicle (ATV)-related deaths: A forensic autopsy data-based study.	*Forensic Sci Med Pathol. 2018 Oct 11 [Epub ahead of print]; PMID: 30311068*
16	Carter J.M., Wu Y., **Blessing M.M.**, Folpe A.L., Thorland E.C., Spinner R.J., Jentoft M.E., Wang C., Baheti S., Niu Z., Mauermann M.L., Klein C.J.	Recurrent Genomic Alterations in Soft Tissue Perineuriomas.	*Am J Surg Pathol. 2018 Dec;42(12): 1708-1714. PMID: 30303818*

Publications by HCIFS Doctors and Scientists

	Authors	Title	Publication
17	Zalewski N.L., Rabinstein A.A., Krecke K.N., Brown R.D. Jr, Wijdicks E.F.M., Weinshenker B.G., Kaufmann T.J., Morris J.M., Aksamit A.J., Bartleson J.D., Lanzino G., **Blessing M.M.**, Flanagan E.P.	Characteristics of Spontaneous Spinal Cord Infarction and Proposed Diagnostic Criteria.	*JAMA Neurol. 2018 Sep 24. doi: 10.1001/jamaneurol.2018.2734. [Epub ahead of print] PMID: 30264146*
18	Jones A.L., Britton J.W., **Blessing M.M.**, Parisi J.E., Cascino G.D.	Chronic traumatic encephalopathy in an epilepsy surgery cohort: Clinical and pathologic findings.	*Neurology. 2018 Feb 6;90(6):e474-e478. Epub 2018 Jan 10. PMID: 29321231*
19	**Blessing M.M.**, Raghunathan A., Erickson L.A.	Progressive Multifocal Leukoencephalopathy.	*Mayo Clin Proc. 2018 Jan;93(1): 123-125. PMID: 29304918*
20	**Blessing M.M.**, Lin P.T.	Identification of Bodies by Unique Serial Numbers on Implanted Medical Devices.	*J Forensic Sci. 2018 May;63(3):740-744. Epub 2017 Jul 18. PMID: 28718881*

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.

- 16 summer interns and 6 fall interns from the following disciplines were on site in 2018:

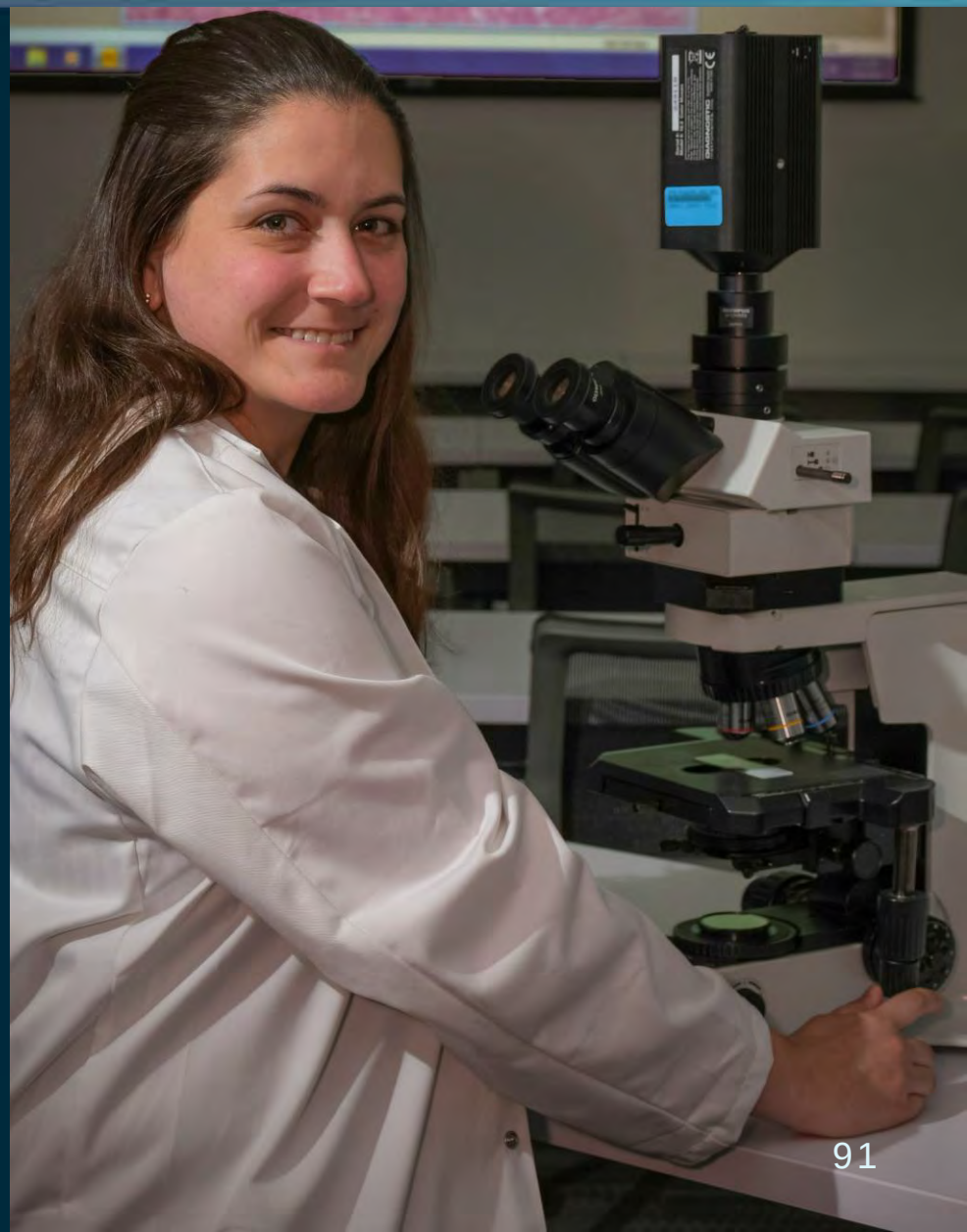
  - Histology
  - Forensic Anthropology
  - Forensic Investigations & Emergency Management
  - Victim's Assistance
  - Systems Support
  - Drug Chemistry
  - Firearms Identification
  - Forensic Genetics
  - Forensic Imaging
  - Forensic Toxicology
  - Trace Evidence

Medical Examiner Fellowship Programs

Forensic Pathology Fellowship:

A one-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



Medical Examiner Fellowship Programs

Forensic Anthropology:

A grant-funded, 12-month training program designed to expose an emerging physical anthropologist to the role of the forensic anthropologist in a medical examiner's office that serves a large urban population.

During the program, the fellow will participate in casework, attend and process death scenes, process unidentified decedents, and conduct a research project.

Crime Laboratory Fellowship Programs

Forensic Toxicology:

A two-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.

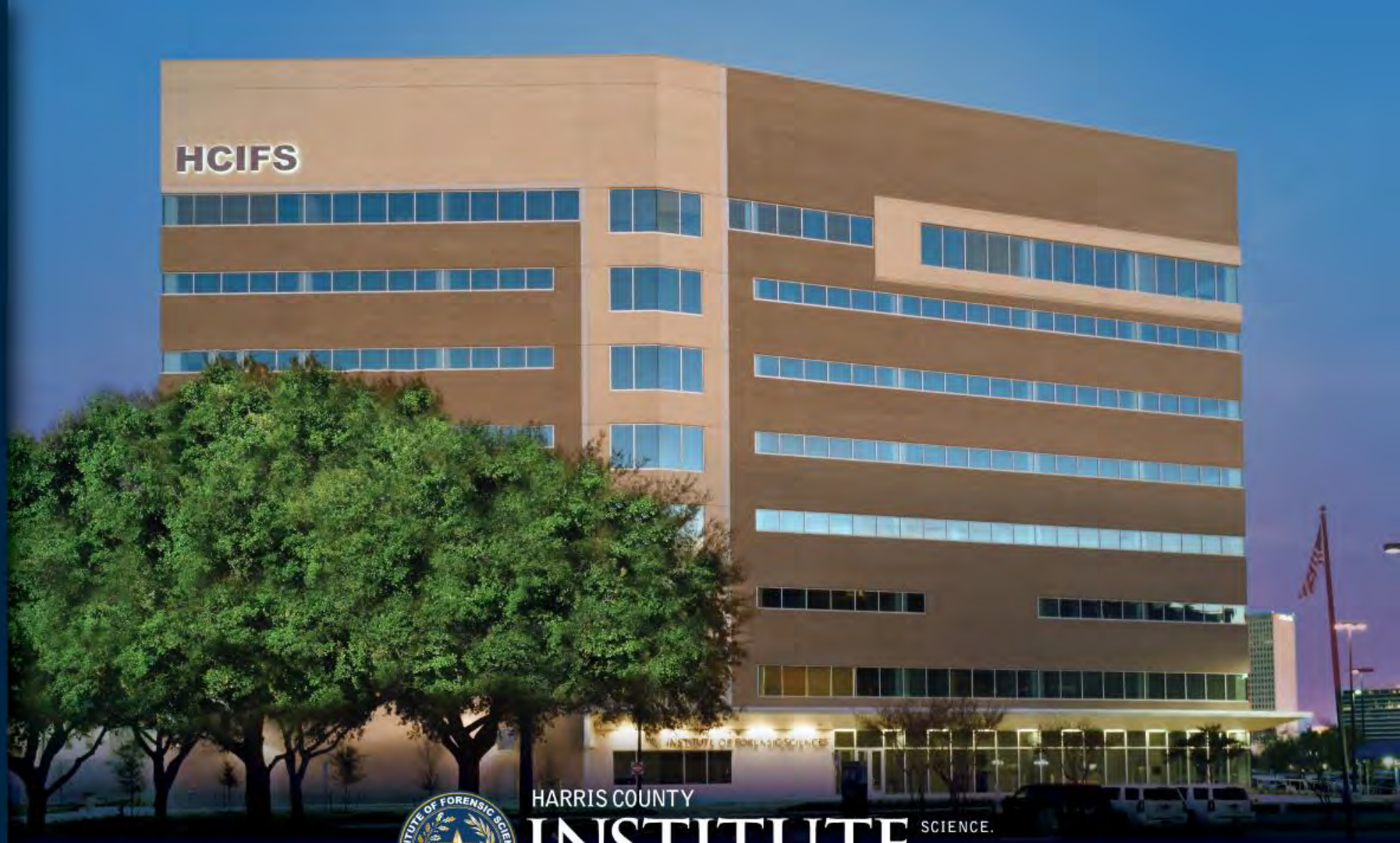
Crime Laboratory Fellowship Programs

Forensic Genetics:

A two-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 would be. 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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