



Tennessee Bureau of Investigation Forensic Services Division

Nashville Crime Lab



Knoxville Crime Lab



Jackson Crime Lab



Tennessee Bureau of Investigation Crime Lab – Testing Units

Latent Prints

Firearms Identification

Microanalysis / Trace

Toxicology

Forensic Chemistry / Drugs

Forensic Biology (DNA)

Crime Scene Investigation

Breath Alcohol Calibration



Tennessee Bureau of Investigation
Crime Laboratory
Latent Print Identification Unit



Comparison



Automated Fingerprint Identification System (AFIS)



Latent Print September Turnaround

Nashville Lab

Violent: 15.9 Weeks

Nonviolent: 12.3 Weeks

Latent Print only at Nashville Crime Lab

Latent Print

Topics of Interest

- **AFIS – Automated Fingerprint Identification System**
- **AFIS Workflow - Forward and Reverse**



**Tennessee Bureau of Investigation
Crime Laboratory**

Firearms Identification Unit







EVIDENCE





Firearms Analysis September Turnaround

Nashville Lab: 44.9 weeks

Jackson Lab: 16.5 weeks

No Firearms Analysis at Knoxville Lab

Firearms Analysis

Topics of Interest

- **Training New Scientists**
 - 7 Trained Scientists**
 - 5 more Scientists in Training**
- **NIBIN – National Integrated Ballistic Information Network**
- **Officer Involved Shootings / Rush Cases**

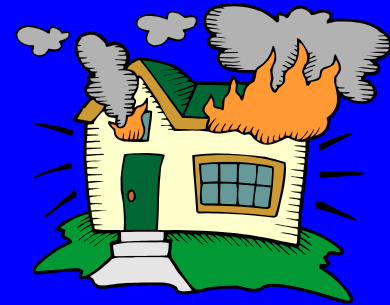


**Tennessee Bureau of Investigation
Crime Laboratory**

Microanalysis/Trace Evidence

Fire Debris Evidence

- Use only Air-tight containers i.e. unused metal paint cans or mason jars
- Analyze for ignitable liquid residues left from gasoline, kerosene, diesel fuel, etc.



Gunshot Primer Residue Analysis

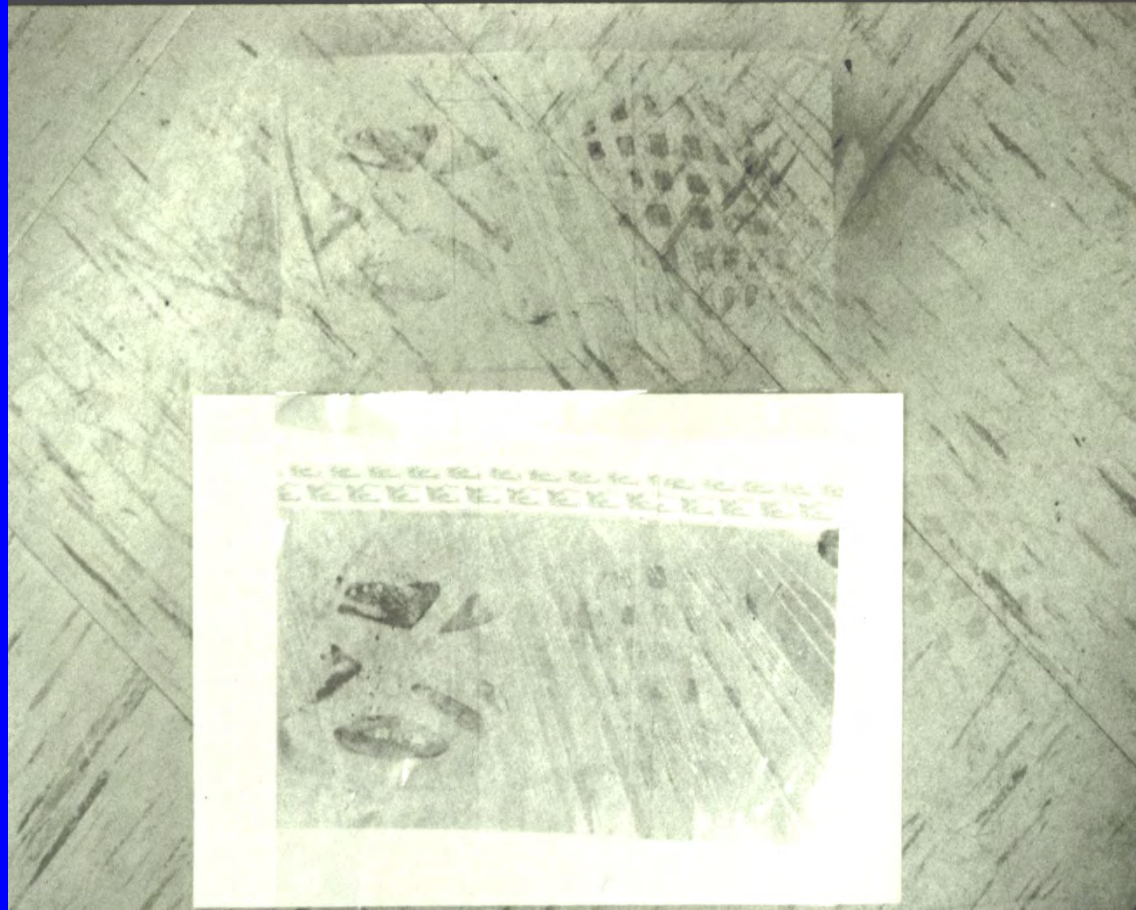




DENTAL STONE CASTS IN MUD, DIRT, SNOW, ETC



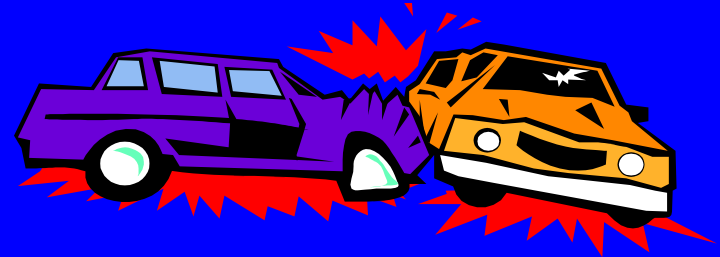
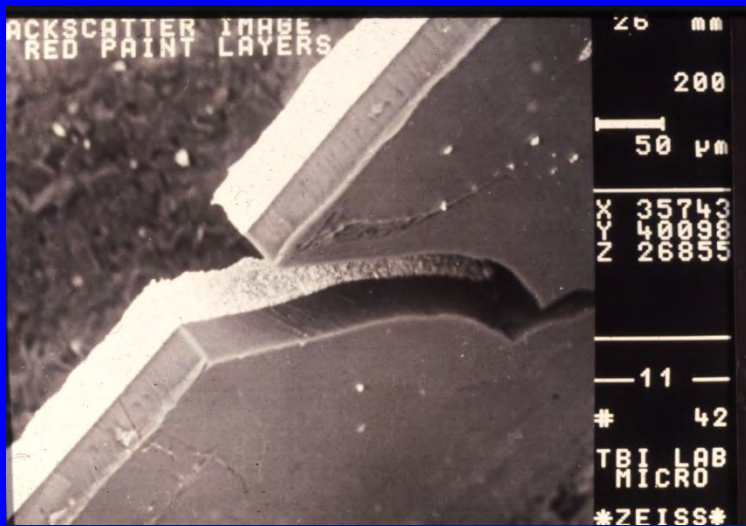
Shoe Impressions





Paint Evidence

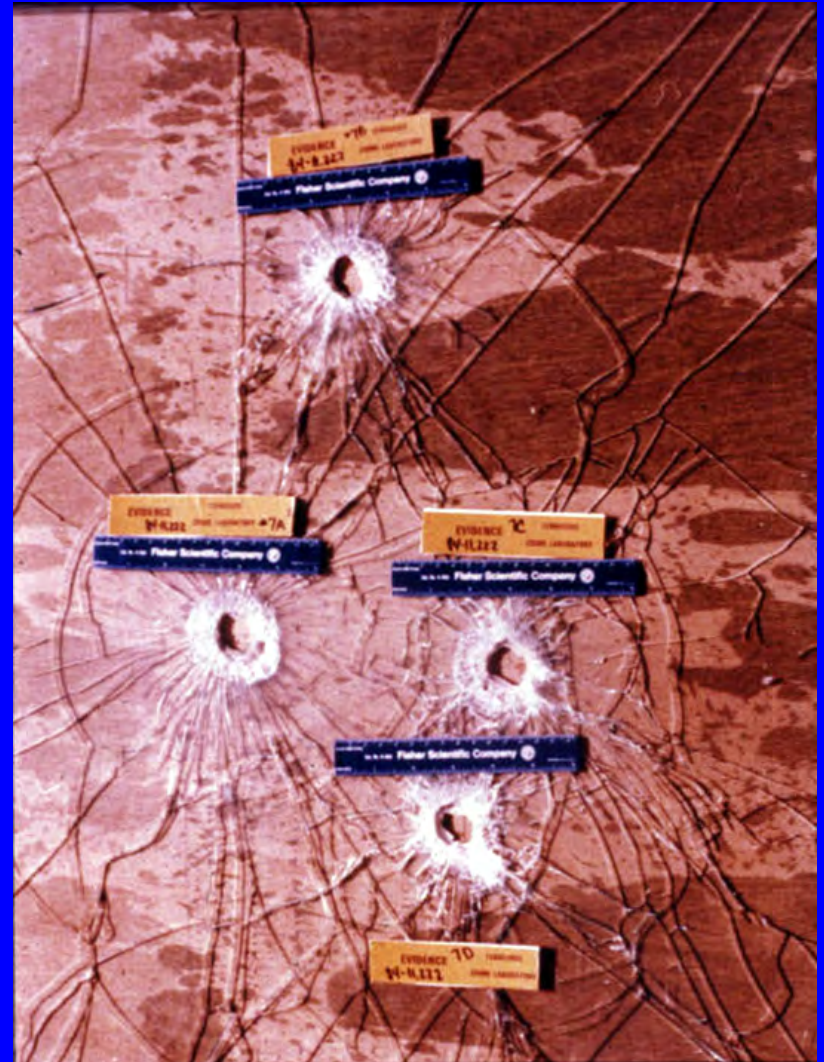
- Paint is common evidence in burglary and hit-&-run crimes



- Paint is analyzed for its color, texture, binder composition, and pigment composition

Glass Evidence

- Analysis types
 - Comparison
 - Fracture Analysis
 - Fracture Match
 - Direction of Force
 - Order of Breakage



Microanalysis

September Turnaround

Nashville Lab

Microanalysis: 28.8 weeks

Arson: 7.6 weeks

Gunshot Residue: 18.9 weeks

Microanalysis only at Nashville Crime Lab

Microanalysis

Topics of Interest

- **Wide range of complex casework**
- **Small staff / extensive training**



**Tennessee Bureau of Investigation
Crime Laboratory**

Toxicology

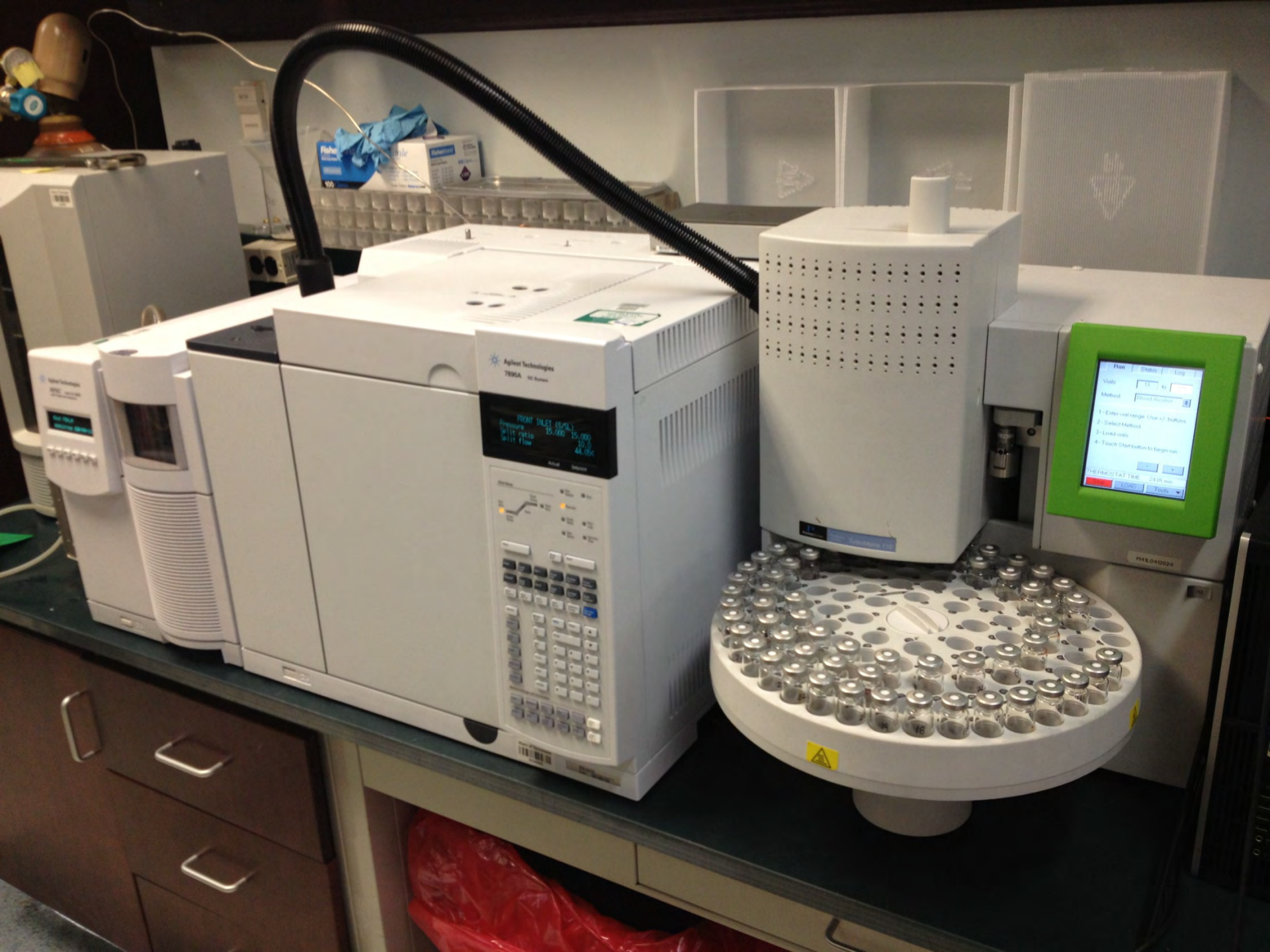


1. 100% Ethanol 100 ml
2. 100% Ethanol 100 ml
3. 100% Ethanol 100 ml
4. 100% Ethanol 100 ml
5. 100% Ethanol 100 ml
6. 100% Ethanol 100 ml
7. 100% Ethanol 100 ml
8. 100% Ethanol 100 ml
9. 100% Ethanol 100 ml
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11. 100% Ethanol 100 ml
12. 100% Ethanol 100 ml
13. 100% Ethanol 100 ml
14. 100% Ethanol 100 ml
15. 100% Ethanol 100 ml
16. 100% Ethanol 100 ml
17. 100% Ethanol 100 ml
18. 100% Ethanol 100 ml
19. 100% Ethanol 100 ml
20. 100% Ethanol 100 ml



Handwritten notes on a piece of paper, including a list of items and a table with columns and rows. The text is partially obscured and difficult to read.

hp LASERJET
55X



Agilent Technologies
7890A GC System

INLET (0.00L)
Pressure 11.11 11.11 11.11
Flow 1.7 44.0%

Run Status Log
Valve 11 to
Method Method Accepted
1. Enter val range. Use +/- Buttons
2. Select Method
3. Load coils
4. Touch Start button to begin run
THEMATIC TAT TIME 24.05 min
Start Tools

7890A0024





This instrument is not in service.

Toxicology

September Turnaround

Nashville Lab

Alcohol: 7.8 weeks

Drug Testing: 16.0 weeks

Knoxville Lab

Alcohol: 4.6 weeks

Drug Testing: 15.7 weeks

Jackson Lab

Alcohol: 21.9 weeks

Drug Testing: 27.2 weeks

Toxicology

Topics of Interest

- **Expanded Testing**
 - Duplicate Blood Alcohol – 2010**
 - Expanded Benzodiazepines – 2011**
 - Expanded THC – 2020**
 - Expanded Opiates, Buprenorphine, Fentanyl – 2020**
- **Increased percentage of cases requiring Drug Testing**
- **Increase in Methamphetamine and Fentanyl**
- **Blood vs. Breath Alcohol**



**Tennessee Bureau of Investigation
Crime Laboratory**

Breath Alcohol



INTOXIMETER
EC/R-II
008098

TRIPP LITE
PRECISION REGULATED
POWER SUPPLY
10 AMP
MODEL PR-10

Intox II
EC/R-II

Intoximeters

FT. CAMPBELL
S/N 008098

PAPER ADVANCE
LINE LOCAL
ON LINE
ERROR
POWER

Intox EC/R-II
Software Version
FT. CAMPBELL
Serial Number: 008098
System Time: 02/08/2003
System Date: 13:39:02 CST
Software Version
V500226-E
Software Version
V500226-E
Software CRC: E8E87700
V500171-U
Firmware Version
Firmware CRC: 920C79E9

Breath Alcohol

Topics of Interest

- **Instruments Calibrated by TBI / Testing Performed by Certified Officers in Field**
Rapid, Timely, Reliable, Convenient
- **One test = two subject samples (blows)**
Negates confusion about mouth alcohol, reflux, etc.
- **No Search Warrant Required**
Supreme Court: Birchfield v. North Dakota



**Tennessee Bureau of Investigation
Crime Laboratory**

Forensic Chemistry / Drugs



N0096513

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check as necessary & file

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check as necessary & file

N0096513

Bankers Box

Bankers Box

Bankers Box

check as necessary & file

N0096513

N0096513

1999 Convicted Offender Folders 100 thru 2999

1999 Convicted Offender Folders 4500 thru 6094

91-1067
91-1069
91-1070
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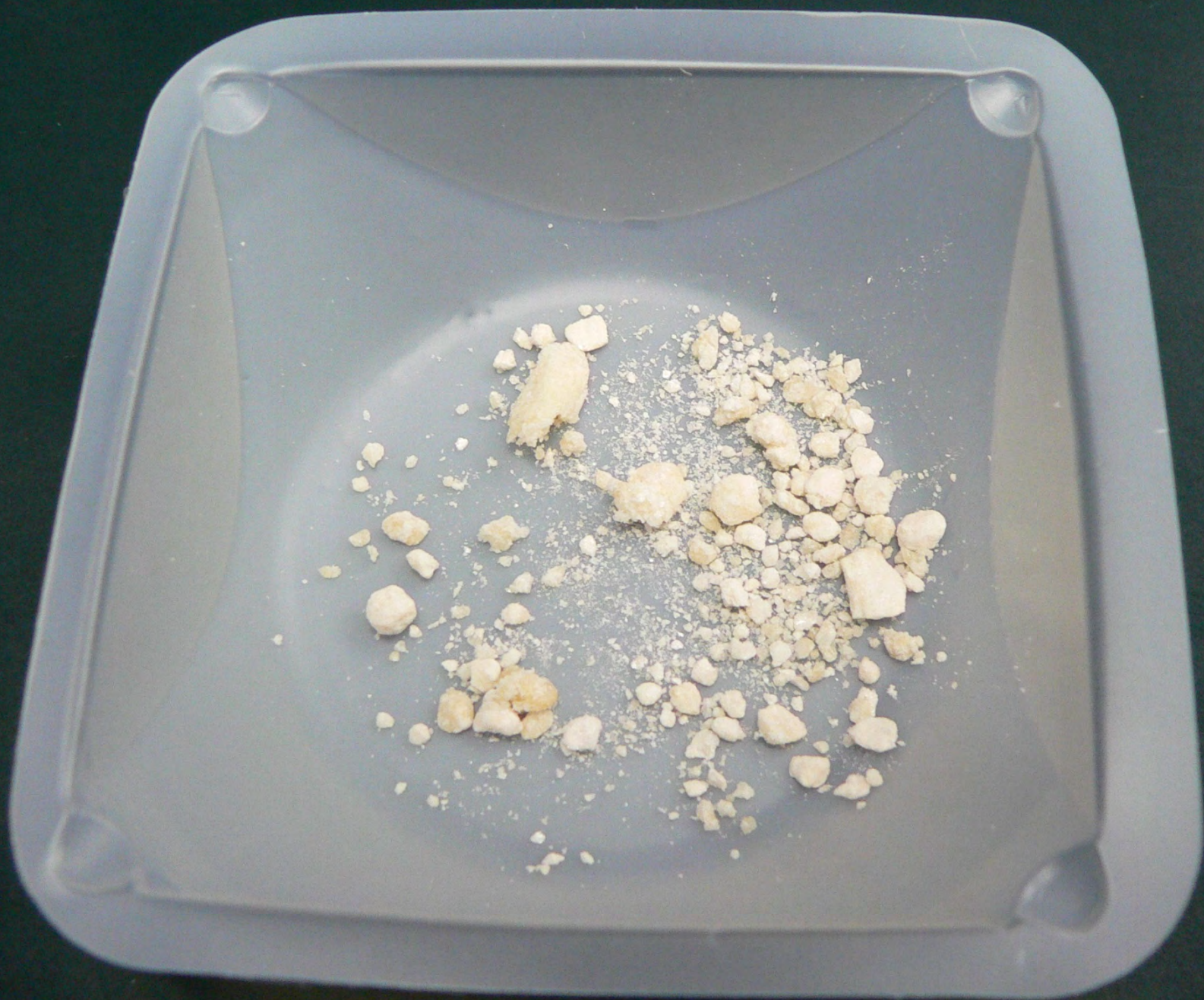
- 1283 = 128 (head)
-- 50 pbc (each head) =
-- 3 pbc (each head) = RIS in each
-- 2 white powder in each

Handwritten notes on a purple folder:

1283

Item	Quantity	Notes
1283	128	head
50	pbc	each head
3	pbc	each head
2	white powder	in each







G



Counterfeits



Counterfeits





JINSHIINDUSTRY





buy fentanyl powder online

~~\$300.00-\$1,800.00~~ **\$250.00-\$900.00**

Fentanyl powder:

Fentanyl treats severe, ongoing pain that cannot be controlled with other medicines. This medicine is a narcotic pain reliever.

Buy Fentanyl online today at very low prize. Buy from <http://omgaxresearchchem.com> means Quantity is Guaranteed .The more you buy the less you pay. Best Quality ever NO ANALOGUES.

QUANTITY IN GRAMS

Choose an option ▾

- [RESEARCH CHEMICALS](#)
- [PAIN RELIEF](#)
- [CANNABINOIDS](#)
- [PRESCRIPTION DRUGS](#)
- [SYRUP](#)
- [DISSOCIATIVES](#)
- [ECSTACY](#)
- [Prescription Drugs](#)
- [Psychedelic Drug](#)

Products

Chat With Us

Forensic Chemistry

September Turnaround

Nashville Lab: 15.4 weeks

Knoxville Lab: 20.9 weeks

Jackson Lab: 17.4 weeks

Forensic Chemistry

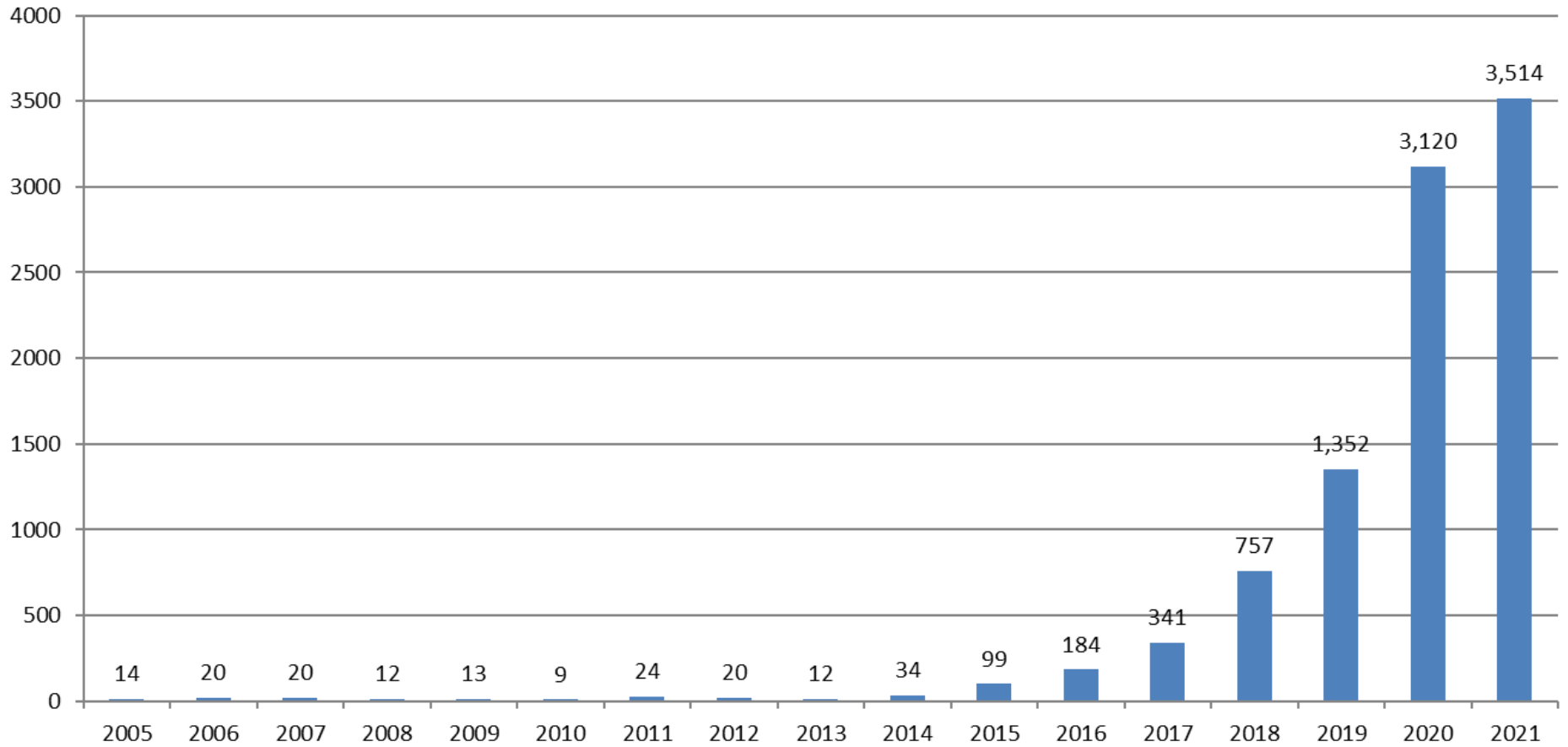
Topics of Interest

- **Increase in overall submissions**
- **Fentanyl, carfentanil, fentanyl analogs**
- **Methamphetamine**
- **Heroin**
- **Counterfeit drug cases**
- **Marijuana, Hemp, Delta-8 THC**

Top 10 Drugs Reported – 2021 Q1 and Q2

- 1 Methamphetamine**
- 2 Cannabis-Marijuana**
- 3 Fentanyl**
- 4 Heroin**
- 5 Cocaine**
- 6 Buprenorphine**
- 7 4-anilino-N-phenethylpiperidine (ANPP)**
- 8 Alprazolam**
- 9 Gabapentin**
- 10 Cannabis-Hemp**

Fentanyl

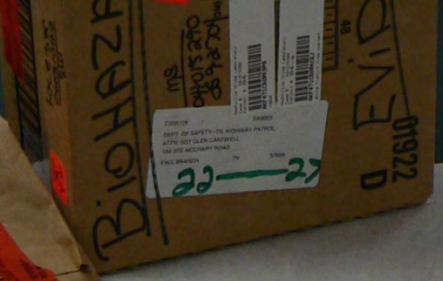




Tennessee Bureau of Investigation
Crime Laboratory
Forensic Biology

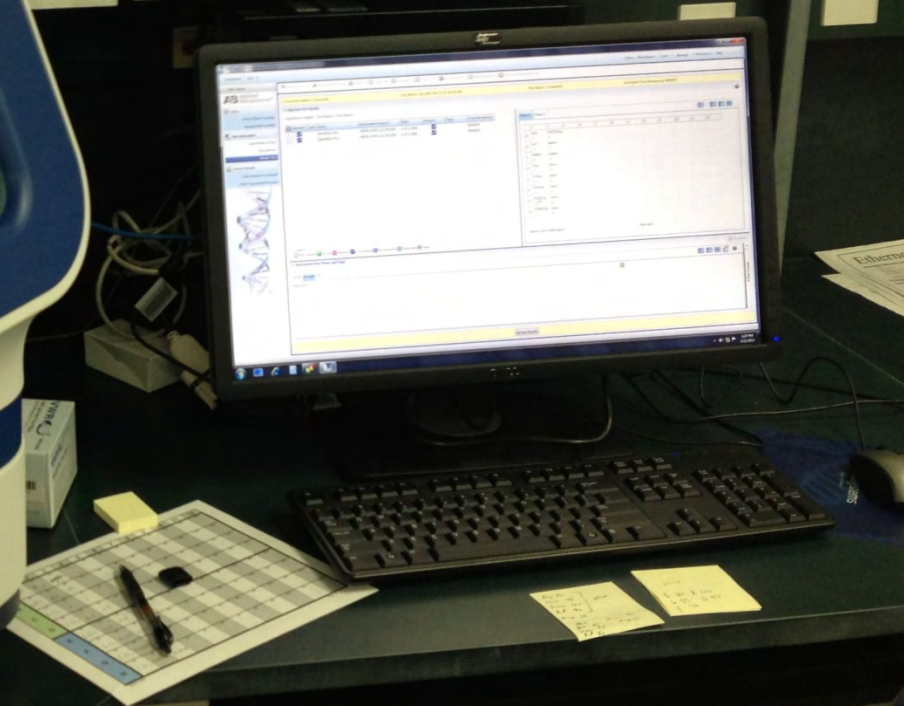
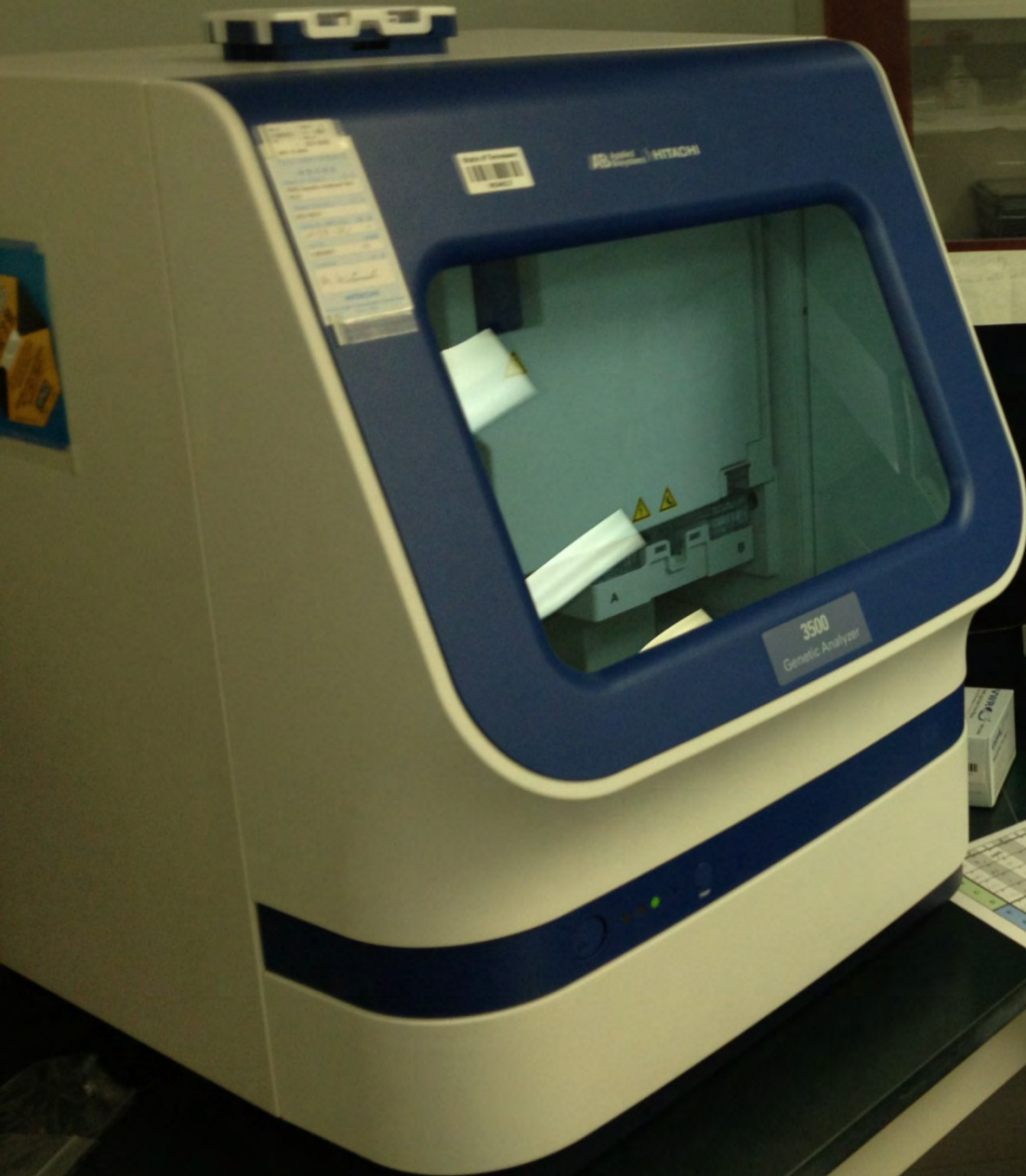


041-
015290-01a
MRB DH





“Touch” DNA





Forensic Biology

September Turnaround

Nashville Lab:

Violent 15.1, Nonviolent 11.6, Sex Offense 25.1

Knoxville Lab:

Violent 28.5, Nonviolent 27.2, Sex Offense 32.0

Jackson Lab:

Violent 24.7, Nonviolent 29.4, Sex Offense 38.4

Forensic Biology

Topics of Interest

- **4 Scientists in Training, 2 Vacant**
- **Sexual Assault Kits**
 - Unsubmitted SAK cases / Outsourced testing and review**
 - Mandatory submission law, SAK Tracking**
- **Touch DNA**
 - Touch DNA is evidence of “last resort”**
- **Mixture Interpretation**
- **Y-STR Testing / Y-Screening**



Tennessee Bureau of Investigation Crime Laboratory

CODIS

CODIS

- **“Combined DNA Index System”**
 - **Convicted Offenders**
 - **Arrestees**



CODIS

Topics of Interest

- **Lawfully Owed DNA**
- **Expungements**
- **Backlogged / Unsubmitted SAK**



**Tennessee Bureau of Investigation
Crime Laboratory**

Crime Scene



TBI

TENNESSEE BUREAU OF INVESTIGATION

SCENE INVESTIGATION

TN 9917 804
S6-KC48





Crime Scene Topics of Interest

- **Law Enforcement Use of Force**
- **Shared Duties / Time away from casework**



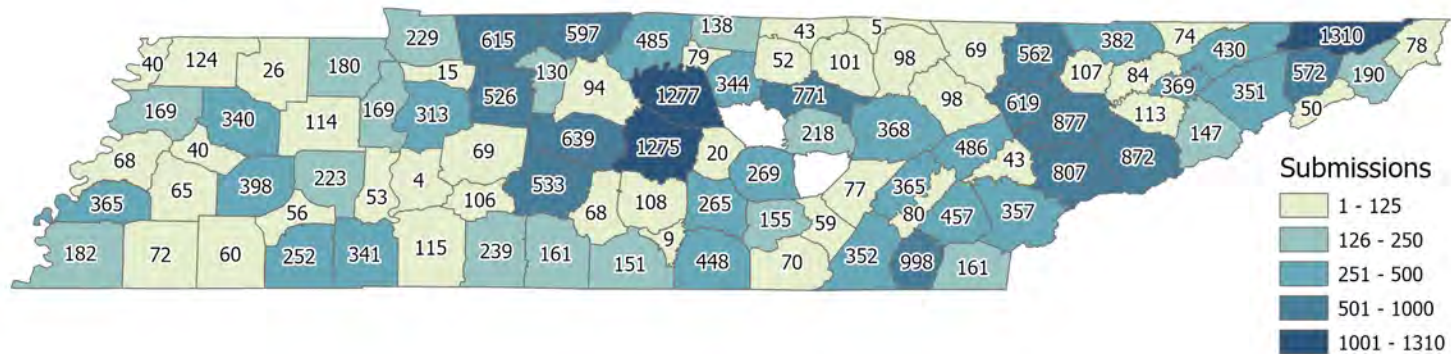
Tennessee Bureau of Investigation Crime Laboratory

Testimony

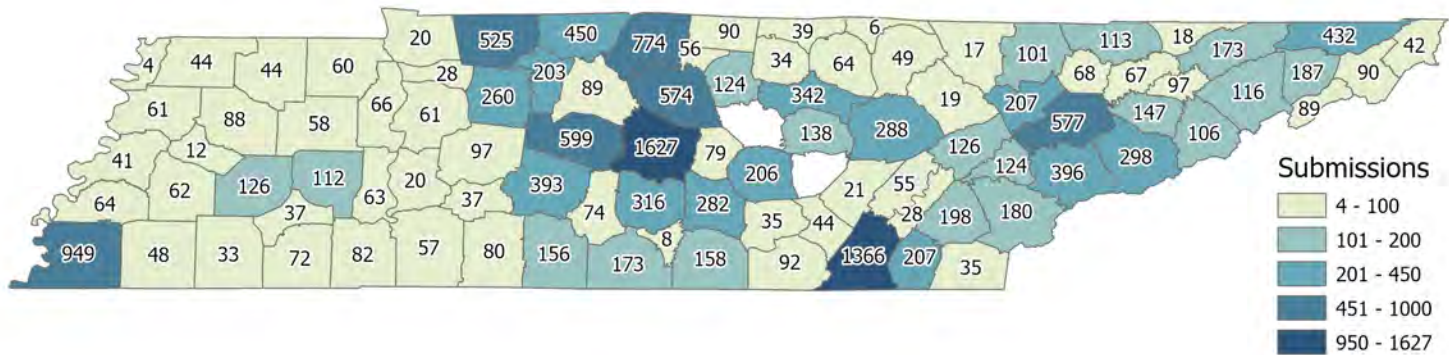


2020 Submissions by County

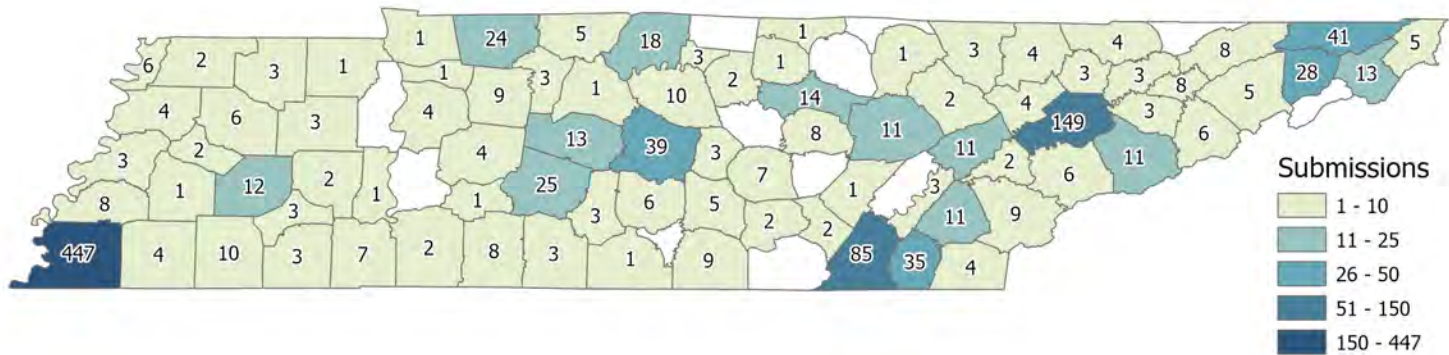
Forensic Chemistry – Drug Identification



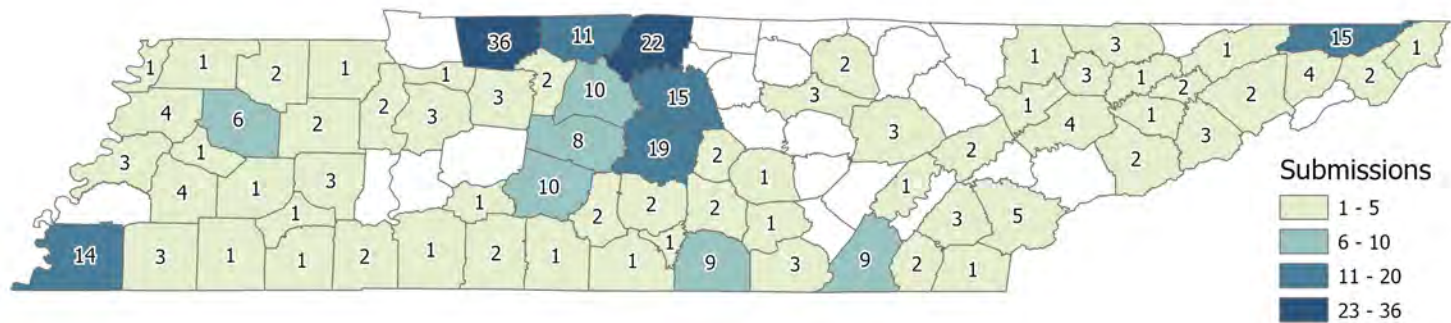
Toxicology - Alcohol Analysis



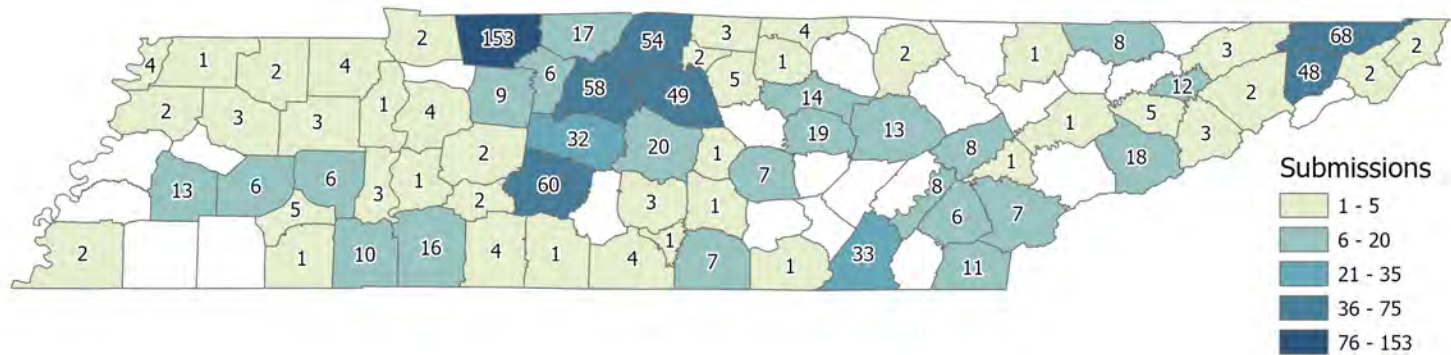
Forensic Biology – Sex Offense



Latent Print – Violent



Latent Print – Non Violent



How do we compare?

Project FORESIGHT

- West Virginia University – College of Business
- Collects and compares data from over 200 forensic laboratories

FORESIGHT MAXIMUS AWARD

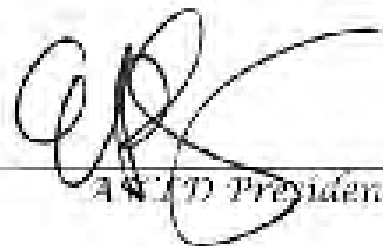
is hereby presented to

Tennessee Bureau of Investigation, Nashville, TN

*in recognition of superior performance by achieving at least 90% peak efficiency for
the 2019-2020 Foresight reporting year.*

Presented the 25th day of August 2021.




ASCLD President



Surrounding States

- Surveyed States in the Southeast
- Results . . .

Cases Per

<u>State</u>	<u>Scientist</u>	<u>Rank</u>
Kentucky	231.8	1
Florida	242.7	2
Indiana	282.7	3
Virginia	290.2	4
North Carolina	311.1	5
Georgia	395.8	6
Tennessee	434.7	7



Questions?

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