



# A Comparison of 1,600 Property Crime Cases from Miami, Florida and Charleston, South Carolina

Season E. Seferyn, M.S.F.S.<sup>1</sup>; Sarah Barr, B.S.<sup>1</sup>; Stephanie Stoiloff, M.S.<sup>2</sup>; Judith Gordon, M.S.<sup>3</sup>; Jason M. Chute, M.S.F.S.<sup>1</sup>; Terry W. Fenger, Ph.D.<sup>1</sup>

<sup>1</sup>Marshall University Forensic Science Center, 1401 Forensic Science Drive, Huntington, WV 25701

<sup>2</sup>Senior Police Bureau Commander, Miami Dade Police Department, 9105 NW 25 Street, Doral, FL 33172

<sup>3</sup>Forensic Services Director, Charleston Police Department, 180 Lockwood Boulevard, Charleston, SC 29403

## Abstract

According to The Federal Bureau of Investigation, there were an estimated 9 million property crimes in the United States in 2010. These crimes constituted an estimated 15.7 billion dollars worth of loss and damage<sup>1</sup>. The Marshall University Forensic Science Center (MUFSC) worked on a property crime project in conjunction with the National Institute of Justice (NIJ). The project dealt with three sites or regions: Miami-Dade, Florida, the Lowcountry Region (Charleston area) of South Carolina and Huntington, West Virginia. The following poster focuses on two of these areas, Miami-Dade, Florida and the Lowcountry Region of South Carolina.

The Miami-Dade portion of this project consisted of 1,227 cases submitted. A total of 1,752 questioned samples were analyzed. Roughly 1.4 questioned samples were tested per case. In comparison, the Lowcountry Region submitted 382 cases with a total of 900 questioned samples. This equates to 2.4 questioned items submitted and analyzed per case.

The samples were collected and accessioned, the laboratory procedures were performed, and DNA profiles were obtained. These cases were then tracked through the adjudication process. For the cases from Miami-Dade, the Clerk of Courts<sup>5</sup> website was utilized to track adjudication. In contrast, to track adjudication for the Lowcountry Region of South Carolina, the submitting jurisdiction was contacted and they utilized their database to determine where the case was in the judicial system and what the verdict and sentence was, if any.

In Miami-Dade at the time of publication, roughly one hundred defendants had been sentenced to a total of 548+ years in prison and 217+ years of probation. The court fines totaled over \$75,000 and restitution equated to more than \$442,000. The Lowcountry Region of South Carolina had similar sentences. In South Carolina, approximately eighty defendants have been sentenced to a total of 431+ years in prison and 121+ years of probation. In South Carolina, no restitution was sentenced and due to the method of adjudication collection, the court fines were not tracked for this portion of the project.

## Introduction

The use of DNA evidence is a widely accepted means of evidence analysis in forensic science. It is commonly obtained from scenes of crimes ranging from violent crimes to non-violent crimes. The testing of DNA evidence obtained from property crime scenes has begun to increase. The definition of a property crime differs slightly based on location. The Uniform Crime Reporting (UCR) Program from the Federal Bureau of Investigation<sup>1</sup> includes the offenses of burglary, larceny-theft, motor vehicle theft, and arson. Property crimes are identified in the Florida Statute under Chapter 812<sup>3</sup>. What constitutes a property crime in Florida is further defined by a website, Total Criminal Defense, as burglary, robbery, larceny and theft, and arson<sup>4</sup>. According to the South Carolina Legislative Council's Code of Laws<sup>5</sup>, crimes against the property include, but are not limited to, the following: arson, burglary, robbery, and robbery of a vehicle. Regardless of the statute, it is clear that the definition differs.

Each jurisdiction determined case submissions. Technical specifications and a Memorandum of Understanding (MOU) were in place prior to the start of this project. Low copy number samples have a lower amount of starting (template) DNA and attempts can be made to obtain DNA profiles from these samples by varying the conditions under which the amplification kit is used. The technical specifications and MOU did not include modifications to the normal procedures to account for these low copy number samples.

All samples were collected according to each agency's protocols. It is important to note that the same presumptive testing was not performed across all locations or samples. The samples were processed and DNA analysis was performed. All resulting profiles were then sent back to the originating agency, reviewed, and uploaded into CODIS (Combined DNA Index System). The hits were tracked and the adjudication process was followed. For the purpose of this study, a positive DNA result reflects a sample that resulted in three or more loci.

This study separated biological evidence by type: oral, blood, and touch. Samples in the blood category underwent presumptive serological testing. Each jurisdiction determined which serological test for blood would be utilized. There was no presumptive testing for the oral category. All samples not belonging to the categories blood or oral were placed in the touch category.

## Materials and Methods\*

### Miami-Dade, FL

- Extraction: Promega® DNA IQ™ on Beckman Coulter® Biomek® 2000
- Quantification: Applied Biosystems® Quantifiler® Human on 7500 Real-Time PCR System
- Amplification: Applied Biosystems® AmpFISTR® Profiler Plus® and COfiler® on GeneAmp® PCR System 9700 Thermal Cycler
- Capillary Electrophoresis: Applied Biosystems® 3100 Genetic Analyzer, GeneScan® v. 3.7.1, Genotyper® v. 3.7

### Charleston, SC

- Extraction: Promega® DNA IQ™ on Beckman Coulter® Biomek® 2000
- Quantification: Applied Biosystems® Quantifiler® Human on 7500 Real-Time PCR System
- Amplification: Applied Biosystems® AmpFISTR® Identifier® on GeneAmp® PCR System 9700 Thermal Cycler
- Capillary Electrophoresis: Applied Biosystems® 3100 or 3130xl Genetic Analyzers, GeneMapper® ID

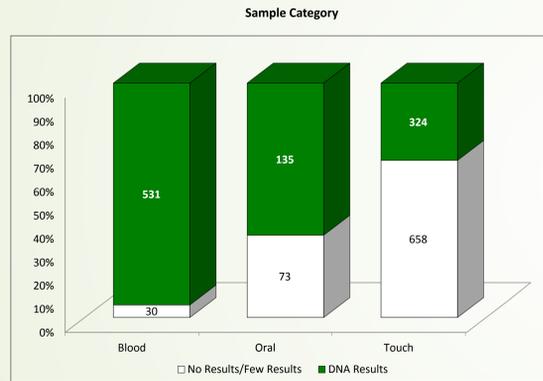
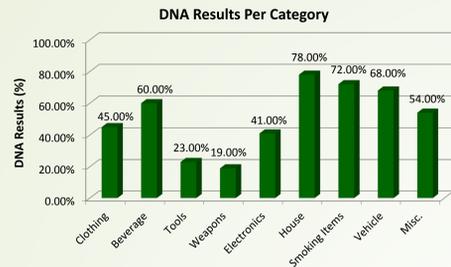
\*According to MUFSC Procedures Manual

## Miami-Dade, FL

### Quick Facts

- Population: 2, 496, 435
- Median household income: \$43, 957
- Local Property Crime Rates of 56.77 when the National Rate is 29.1
  - Chances of becoming a victim: 1 in 18
- 23, 204 reported property crimes per year
- 501 reported crimes per square mile
- 1, 277 property cases received
- 1, 752 questioned samples
- Amplified with Profiler Plus® and COfiler®
  - Analytical Threshold: 150 RFU
  - Stochastic Threshold: 200 RFU

### Results



Adjudication Totals	
# of Cases Adjudicated:	115
# of Years Sentenced:	548 years, 7 months, 16 days
# of Years Probation:	217 years, 7 months, 29 days
Court Fines Paid:	\$75,946
Restitution Paid:	\$442,405.90

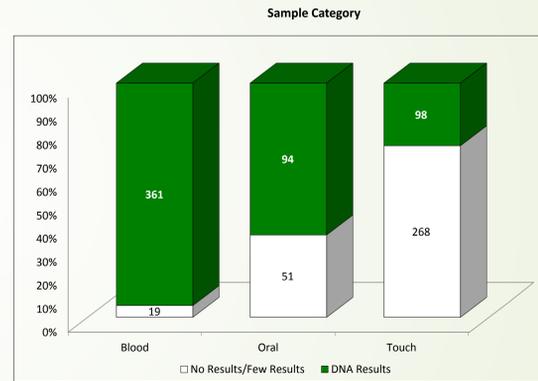
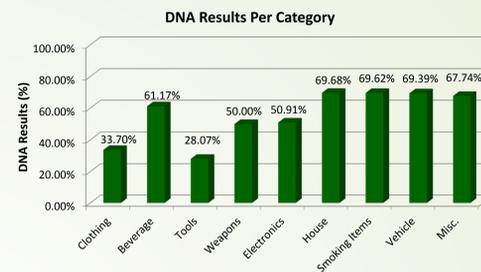
Adjudication Percentage Results Per Category		
Adjudication	# of Cases	Percentage
Pled Guilty	104	90.43%
Pled Nolo Contendere	6	5.22%
Pending	2	1.74%
Convicted	2	1.74%
Adjudged Delinquent	1	0.87%

DISCLAIMER: At the Marshall University Forensic Science Center, our aim is to aid and support state and local laboratories. As a result, MUFSC uses the amplification chemistry of each site location. This study does not recommend the use of one commercial product over that of another.

This project was supported by Award Numbers 2005-MU-BX-K020, 2008-DN-BX-K219, and 2009-IJ-CX-K111 awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this publication/program/exhibition are those of the author(s) and do not necessarily reflect those of the Department of Justice.

## Charleston, SC

- Population: 122, 689
- Median household income: \$50, 938
- Local Property Crime Rates of 33.08 when the National Rate is 29.1
  - Chances of becoming a victim: 1 in 30
- 4, 058 reported property crimes per year
- 35 reported crimes per square mile
- 382 property cases received
- 900 questioned samples
- Amplified with Identifier®
  - Analytical Threshold: 100 RFU
  - Stochastic Threshold: 200 RFU



Adjudication Totals	
# of Cases Adjudicated:	88
# of Years Sentenced:	431 years, 11 months, 28 days
# of Years Probation:	121 years, 10 months

Adjudication Percentage Results Per Category		
Adjudication	# of Cases	Percent
Pled Guilty	77	87.5%
Pled to Another Case	8	9.1%
Convicted	2	2.3%
Other	1	1.1%

## Discussion

Blood produced the largest amount of DNA profiles with greater than 90%. Two-thirds of the saliva samples produced a DNA profile. Touch samples resulted in roughly one out of three producing a DNA profile. It was expected that blood would produce the highest percentage of resultant DNA profiles followed by saliva and then touch samples. It was not expected that roughly a third of the touch samples would result in a DNA profile because the protocols were not modified for low copy number samples. After additional examination of the samples present in this category, one could determine that the higher than hypothesized amount of results were produced because many samples were not just touch samples. These samples include items like hats that are in direct contact with a person's skin and may also contain sweat.

Each specific site location determined their own number of samples submitted for each case. Miami-Dade averaged 1.43 questioned samples per case submitted. Charleston, South Carolina averaged 2.36 questioned samples per case submitted. No pattern was seen regarding the number of questioned samples submitted per case and the percentage of DNA profiles being produced. Submitting more or less samples was not as relevant to producing DNA profiles as the actual biological substances being sampled and submitted.

Out of the number of samples submitted, Miami-Dade had 56.54% of its submitted questioned samples result in DNA profiles. Charleston, South Carolina had a higher rate of DNA results at 62.07%.

It was noted that most offenders were guilty of committing more than one property crime. As a result, many pled to one case and the other case(s) were wrapped into the plea deal. When it came to cases that resulted in prison time, 90.4% of the Miami-Dade cases that had been adjudicated and 87.5% of the Lowcountry Region cases that had been adjudicated were a result of a guilty plea. To the best of the authors' knowledge, only four cases went through to court and all of them ended up in a conviction. In all, at the time of completion of this poster, approximately ninety defendants in the Lowcountry Region had been sentenced to a total of 431 years, 11 months, and 28 days of imprisonment. Also, the sentences resulted in 121 years and 10 months of probation. In South Carolina, no restitution was sentenced and due to the method of adjudication collection, the court fines were not tracked for this portion of the project. At the time of publication, roughly one hundred defendants in Miami-Dade had been sentenced to a total of 548 years, 7 months and 16 days in prison and 217+ years of probation. The court fines totaled over \$75,000 and restitution equated to more than \$442,000.

## Acknowledgements

MUFSC would also like to thank the following organizations for their cooperation:

### Miami-Dade, Florida:

Forensic Services Bureau Commander Stephanie Stoiloff and the Crime Laboratory's Forensic Biology Section at the Miami-Dade Police Department

### Charleston, South Carolina:

Forensic Services Director Judith Gordon and the Charleston Police Department, The South Carolina State Law Enforcement Division, The Lowcountry Regional Property Crimes DNA Initiative, The National Law Enforcement and Corrections Technology Center – Southeast, The Charleston County Sheriff's Office, The North Charleston Police Department, and The Mount Pleasant Police Department

## Literature Cited

1. Federal Bureau of Investigation. Crime in the United States: Property crime. (2010). Retrieved from <http://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2010/crime-in-the-u.s.-2010/property-crime>

2. South Carolina Legislative Council, (2011). The South Carolina code of laws title 16 chapter 11: Offenses against property. Retrieved from South Carolina Legislature Printing, Information and Technology Systems website: <http://www.scstatehouse.gov/code/t16c011.php>

3. The Florida Legislature, (2011). The 2011 Florida statutes title xlvi: Crimes. Retrieved from website: [http://www.leg.state.fl.us/statutes/index.cfm?App\\_mode=Display\\_Inde&xTitle\\_Request=XLVI](http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Inde&xTitle_Request=XLVI)

4. Total Criminal Defense, LLC. Property crime in the United States. (2012). Retrieved from <http://www.totalcriminaldefense.com/crimes-a-z/property/default.aspx>

5. "Find the Best Neighborhoods." *Neighborhood Search for Home Buyers and Real Estate Investment*. Location, Inc., 2013. Web. 09 Oct. 2013.

6. "Miami-Dade County Clerk - County Recorder's Official Record Search." *Miami-Dade County Clerk - County Recorder's Official Record Search*. Clerk of the Court, 2008. Web. 14 Oct. 2013.