



# UNIDENTIFIED CHILD REMAINS: Analysis of Identifications

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## INTRODUCTION

There are approximately 45,000 sets of unidentified remains in the United States, and it is estimated that more than 1,000 of these remains are those of children.<sup>1</sup> The goal of this analysis is to review how remains of deceased children have been successfully identified and to develop data-supported recommendations for law enforcement agencies, medical examiners, and coroners working similar cases. In this analysis 236 identifications were reviewed, dating from May 2000 to December 2020. Four findings of particular interest for investigators working unidentified child cases emerged from the study: most of the children's bodies were recovered within the same city or state from which they went missing; most of the children were deceased within hours or days of going missing; identifications primarily stemmed from a tip submitted to law enforcement; and if a suspect was identified, the perpetrator was not known to the child in most cases, unless the child was under the age of 10.

## METHODOLOGY

A standard set of questions was developed and applied to each case in the analysis to determine the key factors that led to the child's identification. Data was primarily gathered from the case files of unidentified children reported to the National Center for Missing and Exploited Children (NCMEC), National Crime Information Center (NCIC) and the National Missing & Unidentified Persons System (NamUs) records, law

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<sup>1</sup> Ritter, Nancy. Missing Persons and Unidentified Remains: The Nation's Silent Mass Disaster. *NIJ Journal* (256), 2007.

enforcement, coroner and medical examiner reports, Internet searches, and news articles. Some of the case files were incomplete or contained limited information. In such instances in which a particular question could not be answered, the answer was flagged as “unknown.” The cases in this analysis only include those in which the unidentified child was reported to NCMEC, and as such, the results do not necessarily represent the identifications of all deceased children at the national level during the same time period.

## THE CHILD

### BIOGRAPHICAL INFORMATION

Forty-six percent (n=108) of the 236 victims were between the ages of 16 and 20 at the time of their death. Twenty-two percent (n=51) were determined to be over the age of 21 at the time of their death.

<i>Child's Age at Time of Death</i>		
Child's Age	Frequency	Percentage
<b>0-12 Months</b>	4	2%
<b>1-5 Years</b>	14	6%
<b>6-10 Years</b>	8	3%
<b>11-15 Years</b>	44	19%
<b>16-20 Years</b>	108	46%
<b>21+ Years</b>	51	22%
<b>Unknown Age</b>	7	3%
<b>Total</b>	<b>236</b>	<b>100%</b>

Out of 236 cases, 63% (n=148) were females and 37% (n=88) were males. The highest percentage of victims were White, at 51% (n=120), followed by Hispanic at 21% (n=49) and Black at 20% (n=48).

<i>Victim's Race and Sex</i>				
Child's Race	Female	Male	Total Frequency	Total Percentage
White	86	34	120	51%
Hispanic	16	33	49	21%
Black	32	16	48	20%
Biracial	7	1	8	3%
American Indian	3	0	3	1%
Asian	3	0	3	1%
Unknown	1	4	5	2%
<b>Total Frequency</b>	148	88	236	-
<b>Total Percentage</b>	63%	37%	-	-

The accuracy in basic physical descriptors of sex, age, and race are critical to identifying the child. While the majority of these three traits were accurately predicted, in approximately 30% (n=70) of the 236 cases, at least one of these descriptors was inaccurate. Age was the trait most often found to be incorrect. Whether the victim was estimated to be older or younger than the actual age, the age was slightly off by 1-2 years.

The condition of the body did not seem to have a significant effect on prediction accuracy for these three characteristics.

<i>Accuracy of Sex, Race, and Age Predictions Based on Condition of Body</i>							
Condition of Body	Total	Sex		Race		Age	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Fresh	81	81	100%	74	91%	65	80%
Decomposed	54	53	98%	48	89%	42	78%
Burned	18	18	100%	12	67%	16	89%

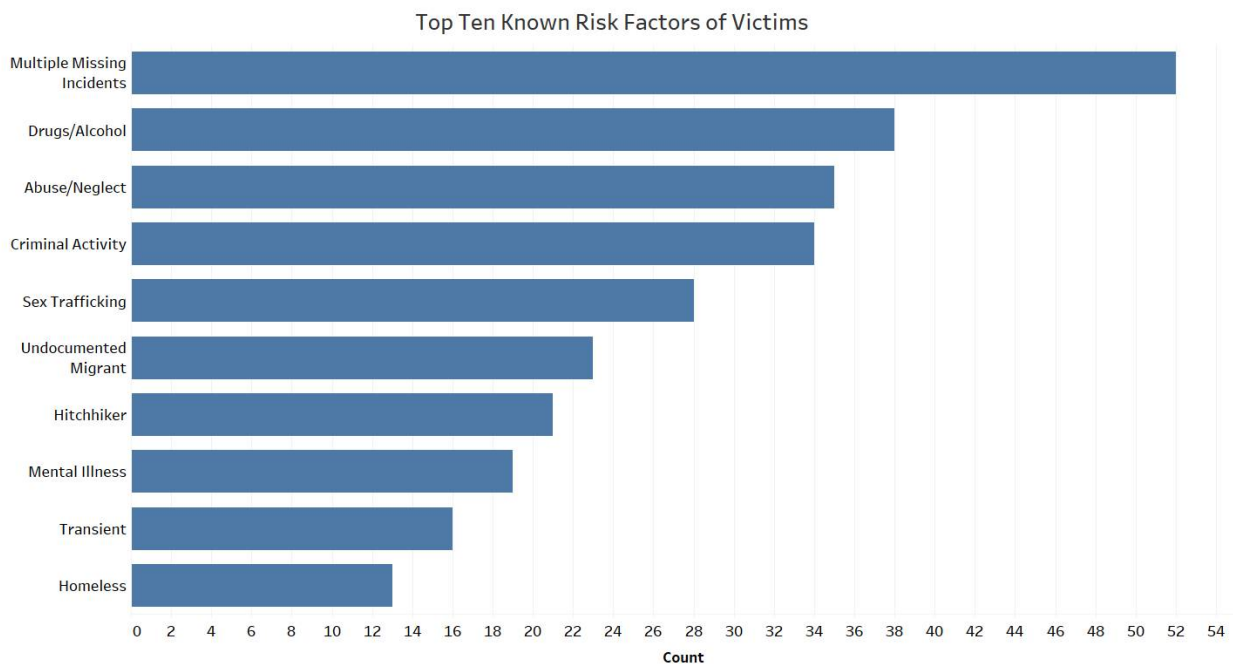
<b>Mummified</b>	4	4	100%	4	100%	4	100%
<b>Skeletal</b>	77	70	91%	59	77%	59	77%
<b>Total</b>	<b>234*</b>	<b>226</b>	<b>97%</b>	<b>197</b>	<b>84%</b>	<b>186</b>	<b>79%</b>

Note: Frequency = the number of accurate predictions

\*Unknown conditions are not included

### RISK FACTORS

Seventy-eight percent (n=184) of victims involved in this analysis had known risk factors, while 22% (n=52) did not list any. Most of the cases had multiple risk factors listed. Twenty-one specific risk factors were accounted for in this analysis. The top three were multiple missing incidents (n=52), drug and alcohol use (n=38), and circumstances of abuse and neglect (n=35).

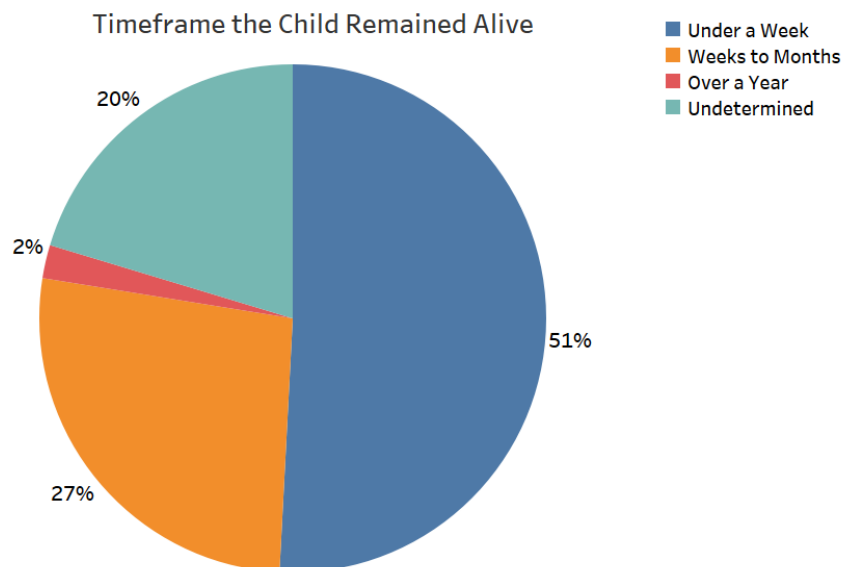


*When searching for potential matches to the unidentified child, it is recommended to search NCIC and internal police management systems for children that had multiple missing incidents that also match the child's physical description. It is important to not automatically discount a potential match just because the child does not have an active, open missing report, but to confirm proof of life before ruling them out. If the child has been reported missing multiple times, there is a chance their last missing incident was not reported to authorities.*

### TIMEFRAME THE CHILD REMAINED ALIVE

A majority (51%) of the victims died within a week of going missing. Only 2% of the victims remained alive for more than one year.

There was insufficient data in 20% (n=48) of cases to determine how long the victim remained alive after they were last seen. The timeframe cannot be confidently determined in these cases due to an unknown date the victim initially went missing, or because the recovered remains were skeletal and the postmortem interval was very broad.



Younger children were more likely to die in under a week than older children. Seventy-three percent (n=51) of children under 15 years old died in under a week from going missing while only 44% (n=70) of older children died in under a week. Only 2% (n=5)

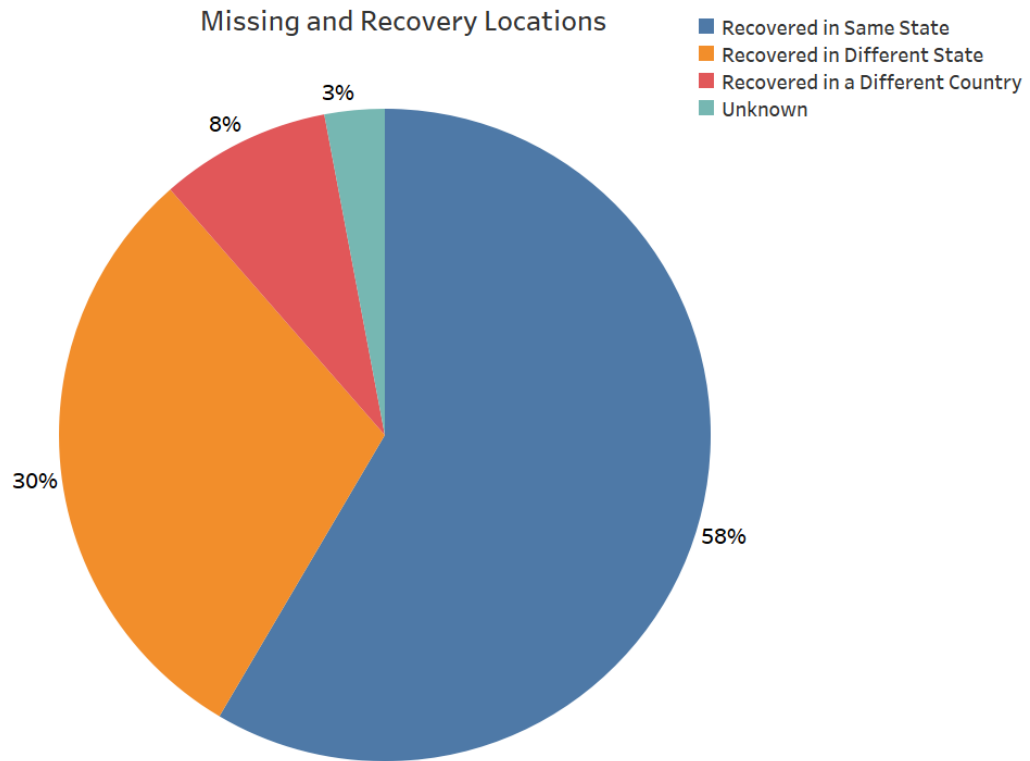
of the children remained alive for over 1 year and all were over the age of 18.

<i>Timeframe Alive Based on Child's Age</i>					
	Total	Under a week	Weeks to months	Over 1 year	Undetermined
<b>0-12 Months</b>	4	100%	-	-	-
<b>1-5 Years</b>	14	64%	14%	-	21%
<b>6-10 Years</b>	8	75%	25%	-	-
<b>11-15 Years</b>	44	70%	25%	-	5%
<b>16-20 Years</b>	108	45%	32%	1%	21%
<b>21+ Years</b>	51	41%	25%	8%	25%

*While the overwhelming majority of children died in under a year, children over 15 years old had a greater chance of remaining alive for over a week. When assessing leads and searching for matches to missing persons, taking the age of the victim into account can produce more valuable leads. The older the victim is, the further back missing dates can go from the estimated date of death. Researching cases with missing dates beyond a year from death are unlikely to produce valuable leads.*

## DISTANCE

Of the 236 cases, 58% (n=138) of the children were determined to have gone missing from the same state in which their bodies were recovered, 30% (n=71) went missing from a different state and 8% (n=20) went missing from a different country.



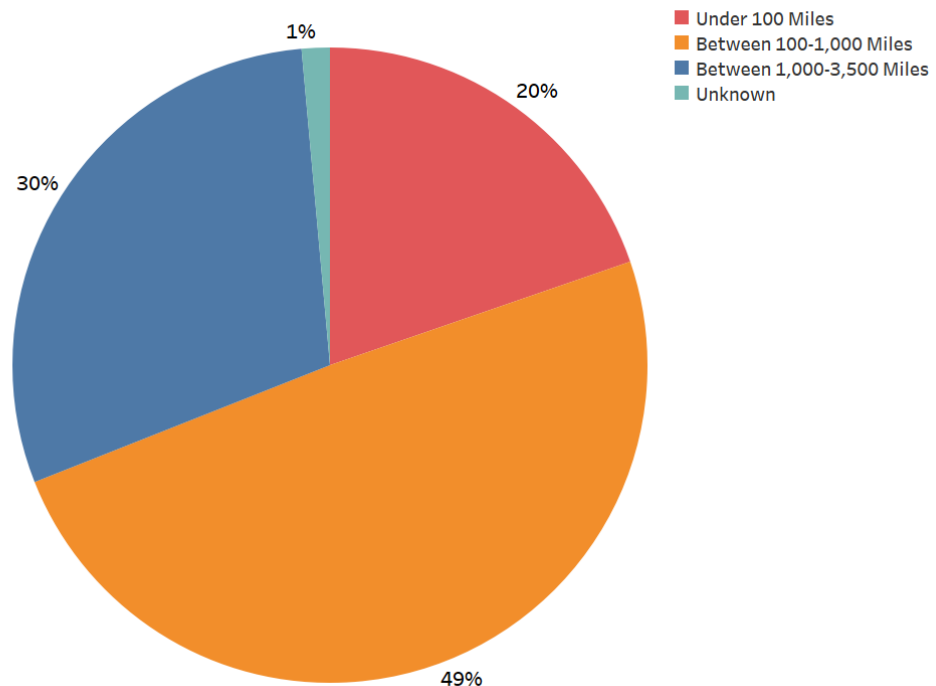
Of the 138 victims recovered in the *same state*, 41% (n=56) went missing from the same city in which their bodies were recovered. Sixty-two percent (n=86) were over the age of 15, and only 20% (n=28) remained alive over a week.

<i>Missing and Recovered in Same State</i>		
Location	Frequency	Percentage
Same City	56	41%
Same County but Different City	25	18%
Neighboring County	40	29%
Same State but Beyond Neighboring Counties	16	12%
Same State but Unknown Specifics	1	1%

For the 71 cases in which the child went missing from a *different state*, 75% (n=53) were over the age of 15, and the majority 52% (n=37) remained alive for over a week.

The median distance was 530 miles between missing location and where the body was recovered. The shortest distance was 5 miles just over a state line, and the longest distance was approximately 3,350 miles across the country.

Distance Between Missing and Recovered Locations of Children Recovered in Different State



Of the 9% (n=20) of cases in which the child originated from another country 55% (n=11) came from Mexico, followed by 35% (n=7) from Central America, and less than 1% each from South America (n=1) and Canada (n=1). A significant number of variables for this case type had to be marked undetermined due to limited case information. For the variables that were known, 75% (n=15) of the children were over the age of 15, and 35% (n=7) remained alive for under a month.



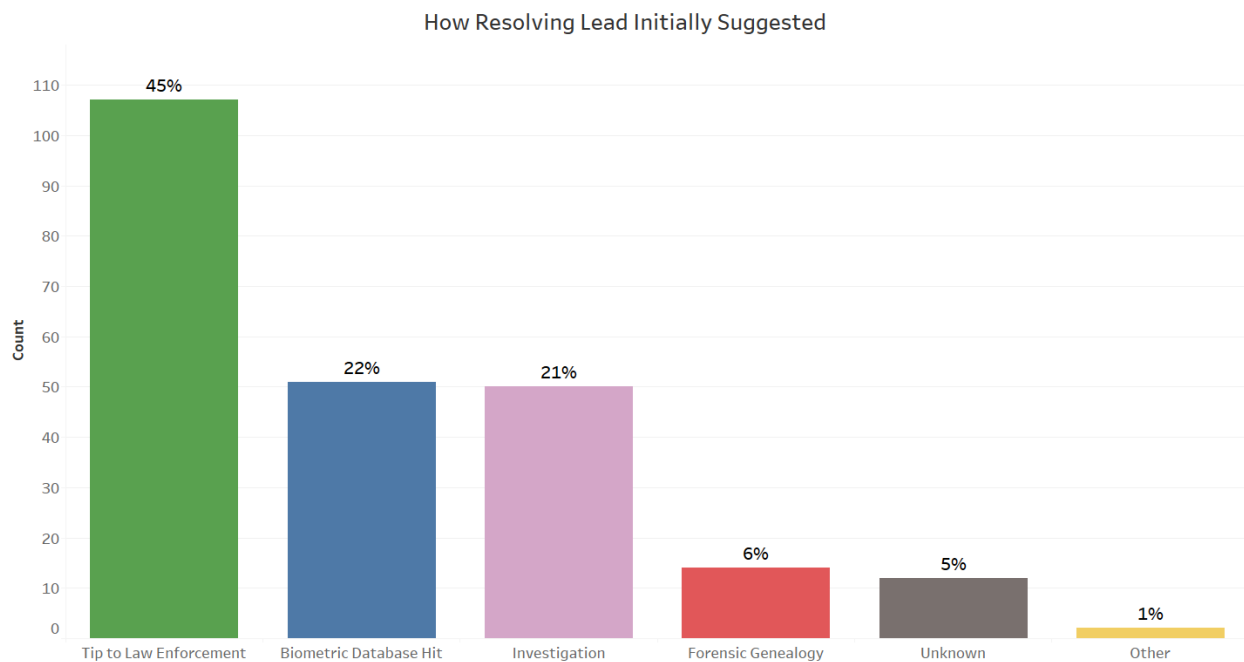
***Children over the age of 15 had a higher chance of remaining alive for over a week and to have gone missing from a different state from where their body was recovered. As such, when an unidentified child is estimated to be over 15, it is recommended out of state leads be researched and pursued.***



## FINDING A RESOLUTION

### INITIAL LEAD

The top three ways identifications were initially suggested were tips provided to law enforcement (n=107); hits in national databases due to proactive efforts to collect biometric data (n=51); and through proactive law enforcement investigations (n=50).



While forensic genealogy currently accounts for 6% (n=14) of total identifications involved in this analysis, the resource only became available in 2018. Between 2018 and 2020, there were 51 total identifications, 27% (n=14) of which were resolved by forensic genealogy. That higher success rate continues to be seen in 2021.

### TIP PROVIDED TO LAW ENFORCEMENT

Forty-five percent (n=107) of the 236 cases were resolved because of a tip reported to law enforcement. The majority of those tips were reported by a person known to the missing child, e.g. family or friend.

<i>Tips Leading to Identifications</i>		
Source of Tip	Frequency	Percentage
Person Known to Missing Person*	60	56%
Person Not Known to Missing Person**	32	30%
Witness***	15	14%

\*e.g. family, friend provided tip to law enforcement after seeing information on the unidentified child

\*\* e.g. websleuth, NCMEC staff provided tip to law enforcement after researching potential matches

\*\*\*Individual with intimate knowledge of case came forward

Out of the 107 cases that were resolved from someone submitting a tip to law enforcement, 31% (n=33) were specifically attributed to the reporting party recognizing a facial reconstruction. Seventy-three percent (n=24) of the facial reconstructions had been completed by a NCMEC Forensic Artist. The actual number of identifications attributed to facial reconstructions is believed to be substantially higher, but in many cases it is unknown what piece of information or image made the connection for the reporting party. Two-dimensional and soft tissue facial reconstructions completed by NCMEC Forensic Artists impacted the majority of the identifications.

<i>Types of NCMEC Facial Reconstructions That Led to Identification</i>	
Reconstruction Type	Frequency
<i>Total NCMEC Facial Reconstruction</i>	<i>24</i>
2D Facial Reconstruction	11
Soft Tissue	7
2D Skull Reconstruction	3
3D Skull Reconstruction	3

*It's recommended that investigating authorities ensure appropriate case information is shared with the public through multiple platforms such as press notifications, social media, and having the case listed with missing and unidentified person sites. That way, individuals can view case information and report a tip that leads to an identification.*

Media efforts contributed to 39% (n=93) of the 236 identifications. Examples varied from seeing case information on television, to social media feeds or specific websites. The facial reconstructions outlined above were primarily seen on the Internet through social media distribution.

Seven identifications can be directly tied back to NCMEC's Help ID Me Facebook page ([www.facebook.com/helpidme](http://www.facebook.com/helpidme)).

In many cases it was difficult to identify the specific website or platform that made the initial connection that lead to identification. In most instances, the reporting party researched the case across multiple sites before reporting a tip.

### BIOMETRIC DATABASE HITS

Database hits resulting from proactive biometric collection led to 22% (n=51) of the total number of identifications. A cold CODIS hit contributed to most biometric database hits at 59% (n=30). A cold CODIS hit refers to an instance in which a connection is made between remains of an unidentified person and DNA on file for a missing person in the absence of a current investigative lead.


<i>Biometric Database Hit Led to Identification</i>		
Type of Identification	Frequency	Percentage
Cold CODIS Hit	30	59%
Automated Fingerprint Match	20	39%
DNA Hit in Cross-Border Database	1	2%

Biometrics are also used to confirm identifications when the potential match was initially suggested through other avenues, such as tips to law enforcement, or to support a biometric database hit. Ninety percent (n=212) of the identifications were confirmed through direct one-to-one biometric comparisons.

<i>How Identification was Forensically Confirmed</i>		
Biometric	Frequency	Percentage
DNA	144	61%
Dentals	35	15%
Fingerprints	33	14%
Non-Biometric	Frequency	Percentage
Visuals	19	8%
Other	4	2%
Unknown	1	<1%

## INVESTIGATIONS

Twenty-one percent (n=50) of identifications were initially suggested by proactive investigative steps completed by law enforcement, the coroner, or the medical examiner's office.



***It is recommended that law enforcement prioritize securing a DNA sample, full dental records, and fingerprints when possible during initial stages of the investigation. Proactive biometric collection can lead to database hits and can forensically confirm identifications developed through other means.***

<i>Proactive Investigations Leading to Identifications</i>				
Investigative Step Taken			Frequency	Percentage
Searched Internal Networks*	Secured		19	41%
Conducted Interviews			8	17%
Searched Public sites**			8	17%
Information Contained in File***			7	15%
Pursued Evidence****			4	9%

\* e.g. NCIC, state databases

\*\* e.g. NCMEC's website, NamUS

\*\*\* e.g. unresolved lead


\*\*\*\* e.g. resubmitted Sexual Assault Kit, tested evidence for latent prints

***Traditional proactive investigations play a critical role in identifying these children. It's recommended that searches of internal law enforcement databases and public sites be completed routinely throughout an investigation to develop leads. Law enforcement should also conduct routine reviews of their files to ensure all leads have been exhausted and current forensic technologies are applied.***

Of the 236 identified children, 39% (n=93) *had not been* reported missing to law enforcement. The younger the child, the less likely it was that they had been reported missing. No statistical difference in reporting was found based on sex and race.

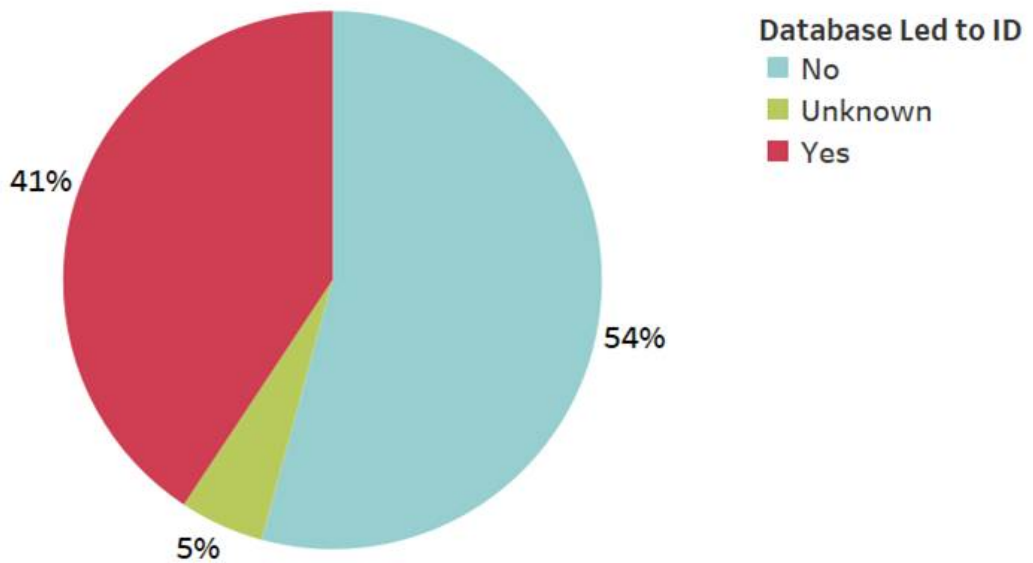
<i>Not Reported Missing to Law Enforcement by Age</i>			
Child's Age	Total Number of Cases	Not Reported Missing	Percentage
0-12 Months	4	4	100%
1-5 Years	14	11	79%
6-10 Years	8	8	100%
11-15 Years	44	8	18%
16-20 Years	108	32	30%
21+ Years	51	29	57%
Unknown	7	1	14%
<b>Total</b>	<b>236</b>	<b>93</b>	<b>39%</b>

Of the 236 cases, 53% (n=125) had a missing person report on file with a law enforcement agency. Despite having a report on file, 25% (n=31) of those cases *were not entered* into any national missing persons database, such as, NamUs or NCIC or reported to NCMEC. When authorities entered a missing child into at least one of the national databases the effort directly contributed to identifying 41% (n=96) of the 236 cases, e.g., automated matching or public saw case information in database and submitted tip that lead to identification.



***Data revealed that 39% of the identified children were never reported missing to law enforcement. As such, searching internal law enforcement databases alone will not always lead to an identification. Proactive comprehensive investigative strategies are needed to develop valuable leads to identify the victim.***

## Missing Person Entry Into a Database Led to Identification



*It's recommended that law enforcement ensure all missing and unidentified person cases are entered into all available national databases to include NamUs and NCIC, and reported to NCMEC, to expand opportunities to locate the child. Likewise, if conducting searches for potential matches, all three national databases should be utilized to ensure a comprehensive review of all reported records.*

### CONTRIBUTING FACTORS

Out of 236 cases, clothing, jewelry and personal items recovered with the body contributed to 11% (n=25) of the identifications. Personal items such as purses, bags and eyeglasses, impacted 4% (n=9) of identifications; clothing description contributed an additional 4% (n=10); and jewelry description contributed to another 3% (n=6).

Of the 25 cases, most of the tips received regarding recovered items were from a

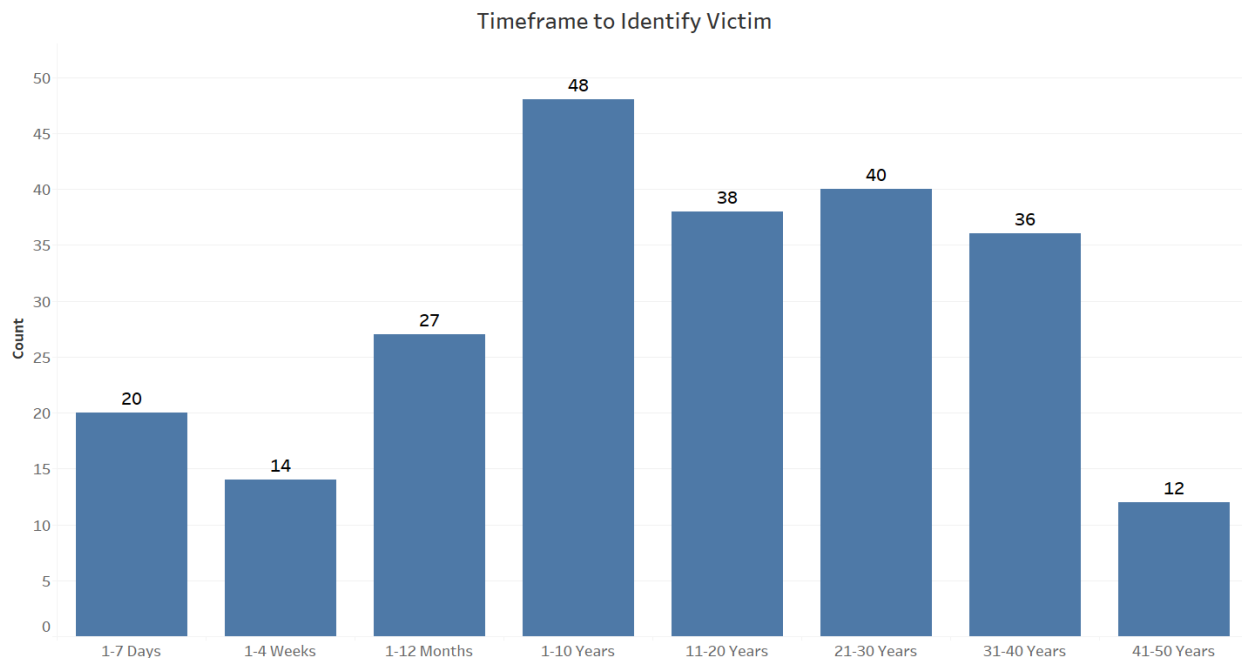
***Documenting the detailed description of clothing, jewelry, and personal items on initial missing persons reports has the potential to make a connection to an unidentified body.***

***Details to include size, brand, color, and undergarments are important because it is unknown what will be left at the crime scene.***

person known to the missing child, followed by a connection law enforcement made through proactive investigative steps.

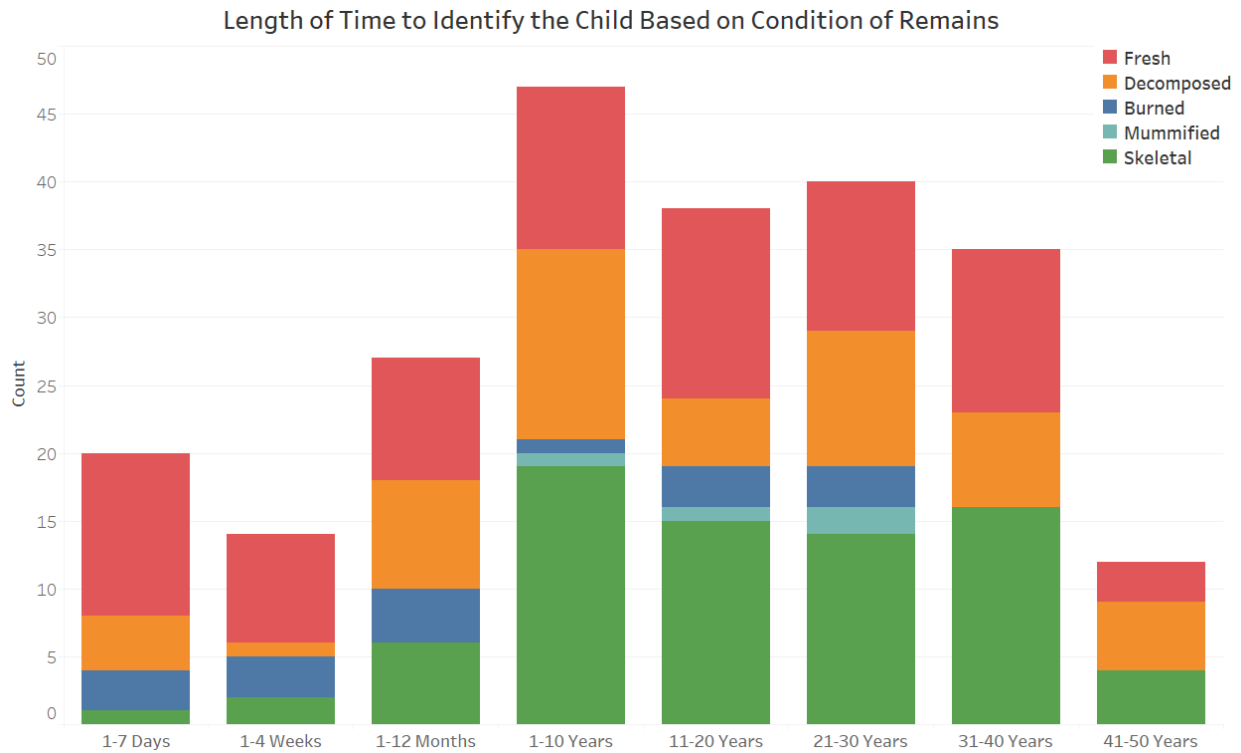
### LENGTH OF TIME TO IDENTIFY

For the majority of the 236 cases, it took over one year to obtain an identification. Only 26% (n=61) of cases were identified in under one year.



The condition of the remains appears to have influenced how quickly the child was identified. Children that were recovered shortly after death and still facially recognizable (fresh), were identified within a shorter timeframe as compared to others. Most skeletal remains took over one year to identify.





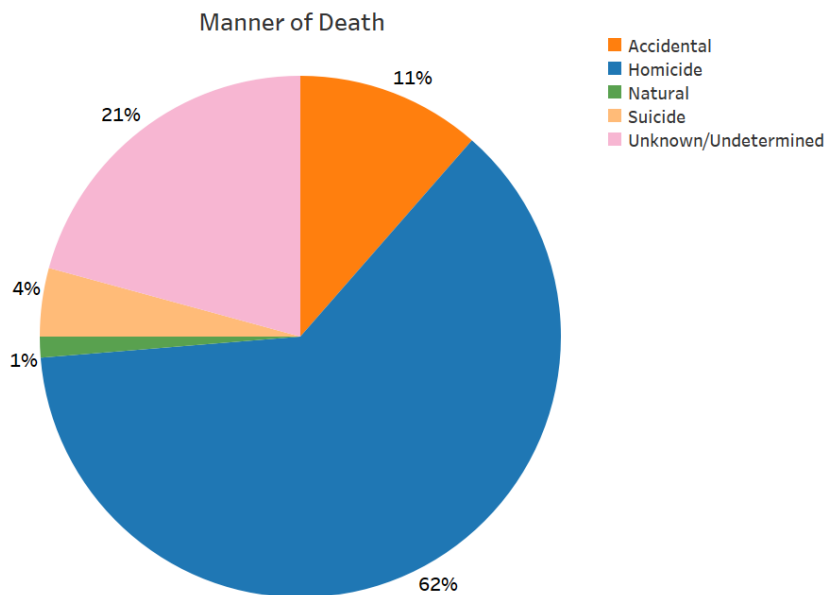
### NCMEC'S IMPACT ON IDENTIFICATION

Out of the total 236 cases, NCMEC resources directly assisted in the identification in 40% (n=94) of the cases. NCMEC forensic imaging resources demonstrated the greatest impact, followed by proactive biometric collections facilitated by NCMEC staff. Some cases had multiple resources that worked together and directly assisted in the identifications, for example, a NCMEC facial reconstruction was pushed out to the public through a NCMEC press notification which generated a tip that resulted in the identification.

<i>NCMEC Resources that Directly Assisted in Identification</i>		
NCMEC Resource	Frequency	Percentage
Forensic Imaging	38	16%
Biometric Collection	27	11%
Media	16	7%
Analytical	14	6%
Lead Management	11	5%
Poster Distribution	11	5%
Advanced Forensic Testing	10	4%

## SUSPECT IDENTIFICATION

Of the 236 identified cases, 62% (n=147) were classified as homicides prior to identification.



### SUSPECT IDENTIFICATION PER MANNER OF DEATH

Suspects have been identified in 51% (n=75) of the homicides. Suspects have also been identified in 2 natural deaths and in 16 that were originally classified as undetermined. The suspects identified in the natural deaths were charged for the improper disposal of the bodies, not for cause of death. In total, suspects have been identified in 93 (39%) of the 236 cases as of December 31, 2020.

<i>Suspect Identification per Manner of Death</i>			
<b>Manner of Death</b>	<b>Total Cases</b>	<b>Suspect identified</b>	<b>Percentage</b>
<b>Homicide</b>	147	75	51%
<b>Undetermined</b>	49	16	33%
<b>Other</b>	3	2	67%

*Conducting parallel investigations into the victim's and suspect's identities will likely increase the chances of case resolution.*

Of the 93 cases where a suspect has been identified, 40% (n=37) were identified prior to the victim's identification being known. Learning the suspect's identity directly led to identification of the victim in 18 (49%) of the 37 cases.

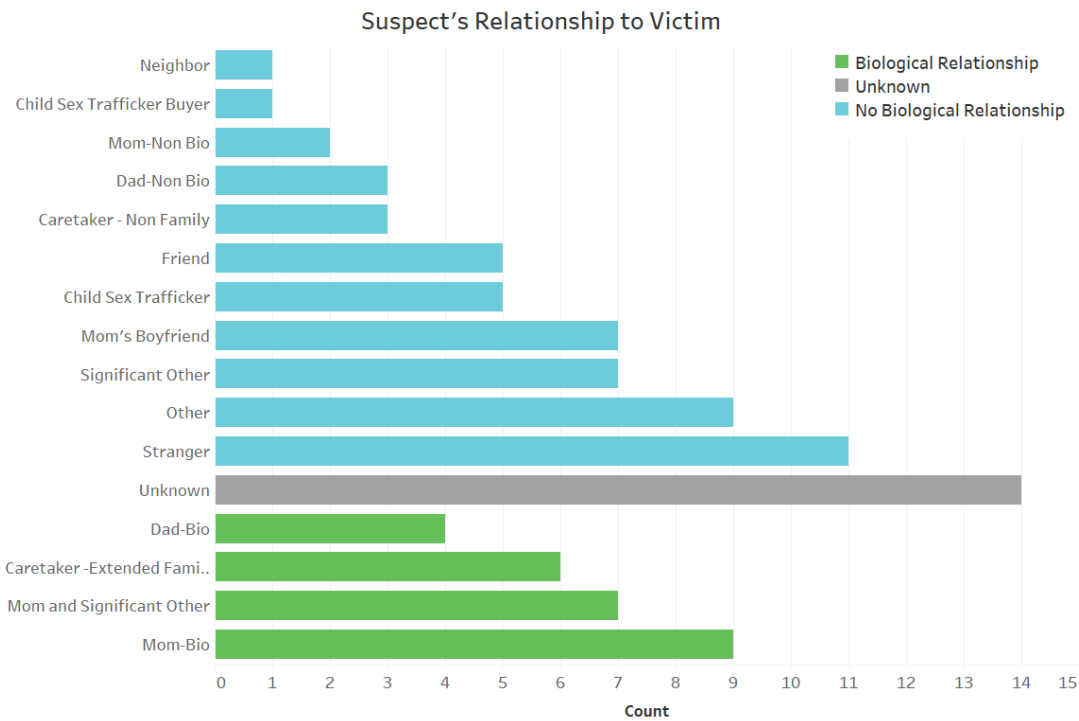
Of the 93 cases in which suspects were identified, 64% (n=63) were identified by traditional law enforcement investigations, e.g., canvasses, interviews, cell phone analysis.

**HOW SUSPECTS WERE IDENTIFIED**

<i>How Suspects Were Identified</i>		
Identification Method	Frequency	Percentage
Witness Provided Info	6	6%
Tip to Law Enforcement	10	10%
Law Enforcement Investigation	63	64%
Evidence Submission*	5	5%
Suspect Came Forward on Own	8	8%
Forensic Genealogy	1	1%
Unknown	5	5%

\* To CODIS or IAFIS


While the specific relationship between the identified suspect and victim varied greatly, 58% (n=54) were not biologically related.



There were three manners of deaths in which suspects were identified: homicides (n=147), undetermined (n=49), and natural deaths (n=3). Suspects were identified more frequently when the child was under 10 years old, and for those 26 victims under 10 years of age, 77% (n=20) of the suspects were biologically related to the child. The biological mother was involved the most frequently in 15 of the 20 deaths.

<i>Suspect Identification Based on Age of Victim</i>			
Child's Age	Total Cases*	Suspect Identified	Total Percentage
0-12 Months	4	4	100%
1-5 Years	14	14	100%
6-10 Years	8	8	100%
11-15 Years	36	16	44%
16-20 Years	94	34	36%
21+ Years	39	15	38%
Age Unknown	3	2	67%
<b>Total</b>	<b>198</b>	<b>93</b>	<b>47%</b>

\*Homicides, unidentified, natural



*The younger the child, the more likely a suspect will be identified. If the child is under 10 years of age, the suspect is likely a biological relative.*

## CONCLUSION

The results of this analysis reveal specific investigative steps and resources that appear to have the most impact resolving cases of unidentified children. However, there is not one technique or resource that stands above others, and investigators tasked with resolving an unidentified child case should develop a multifaceted approach that incorporates multiple layers of resources.

The findings indicate that proactive investigated methods play a critical role in identifying these victims. Combining routine searches in law enforcement databases and public missing person sites with a diversified media strategy will increase chances of developing valuable leads. Relying solely on law enforcement databases overlooks the victims that are not reported missing, or those whose missing event has not been entered into a searchable national missing person database. When conducting routine searches, the data supports prioritizing missing children from the same city and state the victim was recovered in, and who had gone missing within a week prior to the estimated date of death.

Biometrics have also been demonstrated to play a significant role in making identifications. Associations made in biometric databases might not have been made or may have taken longer to connect if proactive efforts securing biometrics had not been taken.

Conducting parallel investigations into the victim and suspect's identities could also increase the chances of finding a resolution. While the specific relationship between the suspect and victim varied greatly, the younger the victim, the more likely a biological relative was involved.

These are challenging investigations, and the majority took over one year to resolve. By focusing investigative efforts on the steps that have proven successful and taking advantage of emerging technologies such as forensic genealogy, more and more cases could be resolved in a shorter timeframe.