

National Missing and Unidentified Persons System NamUs

Abstract

The NIJ's National Missing and Unidentified Persons System (NamUs) has been fully operational for more than two years and is a model of translation criminology, having developed and refined ideas into an applied technology that works. This presentation studies metrics gathered through use of the system including:

- Cold case timelines before and after NamUs is applied
- Methods for comparing forensic identifiers within the system
- System growth and resolution comparisons over time

Real world implementation of NamUs has resulted in discoveries leading to greater case collaboration, information sharing and success for agencies across the country.

The NamUs System

The goal of NamUs is to help investigators resolve missing persons (MP) and unidentified persons (UP) cases by comparing forensic identifiers, collaborating with other agencies, engaging the public and providing high-quality forensic services. NamUs comprises two databases containing unique identifying information for MP and UP cases. These databases interface directly with each other to compare this information and produce potential matches that can then be verified by investigators or forensic experts. NamUs serves as a repository for case information providing quick access to data for sharing with other investigators.

In the two and a half years since the integrated system launched, NamUs has produced dramatic results: 129 NamUs-assisted case resolutions as of April 2011. That averages to 4.6 resolutions per month. These results are attributed directly to the application of database technology and forensic science techniques used in matching missing persons with unidentified remains while connecting agencies, investigators and families from across the U.S.

The outcomes seen by agencies using the system include:

- NamUs can substantially reduce the time required to resolve cold cases involving missing persons or unidentified remains
- NamUs is not limited by geography or jurisdictional lines and can connect MP and UP cases originating from anywhere in the country
- Significant forensic and investigative information is quickly and effectively communicated to investigators at any location, assisting to advance MP investigations and resolve cold cases
- Coroners and medical examiners can enter unidentified decedent information to quickly compare the remains with missing persons from anywhere in the country

Moving forward, NamUs offers the promise of reducing the backlog of unidentified remains cases in the U.S. and streamlining the investigation of missing persons by rapidly matching cases across state lines.

Comparing Forensic Identifiers

The NamUs system automatically compares identifying information contained in the case files from missing persons cases with the same or significantly similar information in unidentified persons cases to return a list of potential matches to investigators. To supplement this service, strengthen the quality of the data and provide identification support for potential matches, NamUs uses forensic experts in odontology, anthropology and fingerprint analysis to evaluate forensic identifiers. NamUs also assists in coordination of DNA analysis through partner organizations. These services are provided to investigators at no cost.

Physical Characteristics

NamUs has the capability to store and search cases by unique physical characteristics including:

- Age
- Sex
- Race/Ethnicity
- Hair color and/or presence
- Left and right eye color
- Tattoos
- Height
- Scars and marks
- Deformities
- Other distinctive body features
- Artificial body parts
- Medical implants
- Piercings and foreign objects
- Skeletal information



Photographs and Artist Renderings



Photographs may be uploaded to NamUs by investigators or family members. Images of missing persons can be compared with morgue photos or artist renderings of unidentified persons to identify potential matches. Photographic details can include close-ups of distinctive body features and other identifying characteristics to aid in making a positive identification. As a single source of identification, this is often inconclusive and is combined with methods such as fingerprint, dental or DNA comparison to reach a positive conclusion.

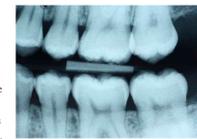
Fingerprints

Fingerprint classifications (general ridge formation) for missing persons are stored in the NamUs databases and are available only to investigators for identification purposes. Investigators and NamUs staff can enter this information into case files. NamUs also provides forensic fingerprint analysis expertise for classification of fingerprints as requested by law enforcement. NamUs fingerprint experts are available to assist with comparisons of possible matches.



Dental Records

Dental records, NCIC dental coding and images of radiographs can be uploaded to the system by authorized users. Assistance with obtaining and entering dental data can be provided at no cost by a NamUs forensic odontologist (FO) when requested by law enforcement. The forensic odontologists work in conjunction with NamUs staff to obtain dental records from last known dentists or family members and provide NCIC coding services when needed. The FOs compare dental records, preferably with radiographs, from the missing and unidentified persons cases for system proposed matches or by request from law enforcement. Potential matches can be excluded or positively identified through dental record comparisons.



DNA

NamUs has partnered with the University of North Texas (UNT) Center for Human Identification to acquire and analyze mitochondrial and nuclear DNA samples from unidentified remains and families of the missing. The NamUs case file indicates the availability status and type of DNA profiles for every case and provides investigators with the means to access that information. NamUs works together with the family members and law enforcement in submitting family reference samples to UNT or other preferred agency. This increases the potential that remains can be identified through DNA by means of CODIS.

Implications For Practice

The NamUs system brings significant value to stakeholders. As the system continues to develop and expand, so do benefits to the justice community, advocates and families of the missing including:

- Improving quality and quantity of missing persons data and simplifying reporting and management of these cases for law enforcement
- Reducing research time and increasing efficiency and availability of information for investigators through expanded communications
- Offering agencies no-cost access to forensic experts and free DNA testing through partnering organizations
- Serving as a free repository for unidentified persons cases with automatic case comparison against missing persons cases, reducing costs and burdens on medical examiners and coroners
- Incorporating family knowledge into investigations
- Allowing the public to actively engage in searching for missing persons



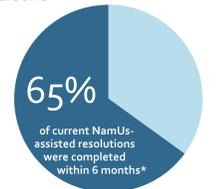
Side-by-side comparison view of potential matching MP and UP records

System Growth and Resolutions

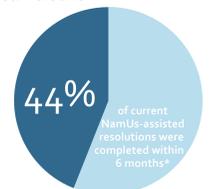
The NamUs system reached 15,000 published cases in May 2011. The system continues to expand in terms of number of cases and the quality of the data contained in each case file. Forensic services, a key component of the system, applies forensic expertise to increase the value of case information by assessing the data quality, acquiring additional relevant data, and assisting investigators with analysis of existing information such as fingerprints and dental records.

Forensic services have a significant impact on the number of cases resolved with assistance from NamUs. As the volume of published cases continues to increase, and the quality of the forensic information available for each case improves, the number of resolutions increases accordingly. As of April 2011, 65% of the NamUs-assisted MP case resolutions and 44% of the NamUs-assisted UP resolutions have occurred within six months of first entry into the system.

Missing Persons

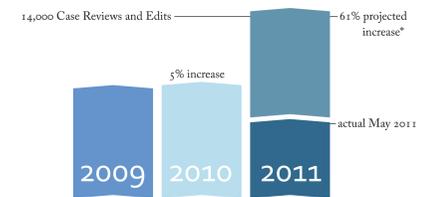


Unidentified Persons

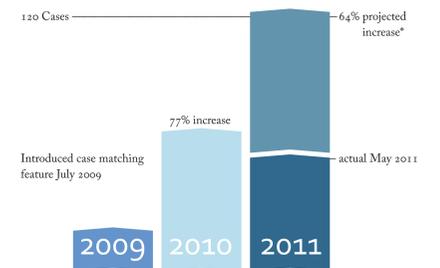


* elapsed time from first entry into NamUs to positive identification

Forensic Services Activity

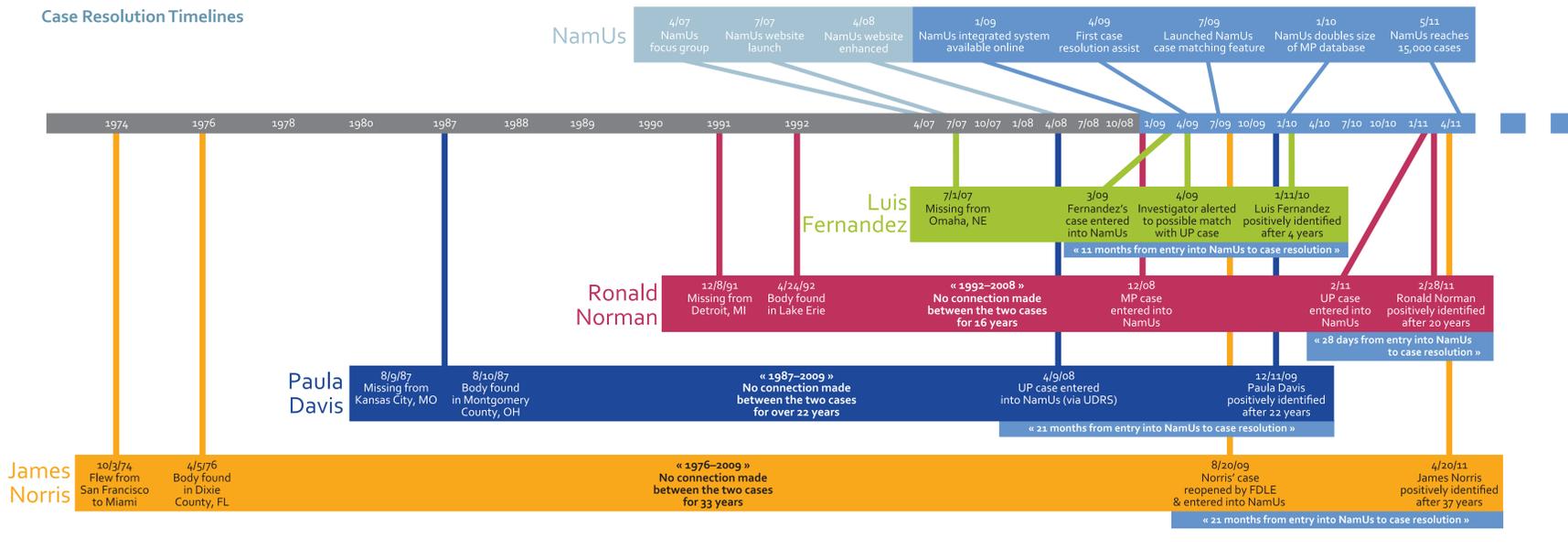


Resolution Increase



* Projected results assume case entry and Forensic Services activity remain at current levels

Case Resolution Timelines



Cold Case Resolutions

There is no single definition for a cold case. Agencies view cases differently based on conditions within each jurisdiction including population, urbanization, geography, violent crime rate and other factors. In rural areas with low rates of violent crime, missing persons cases may stay active longer, while in highly urbanized areas, increasing case loads often require cases be prioritized differently.

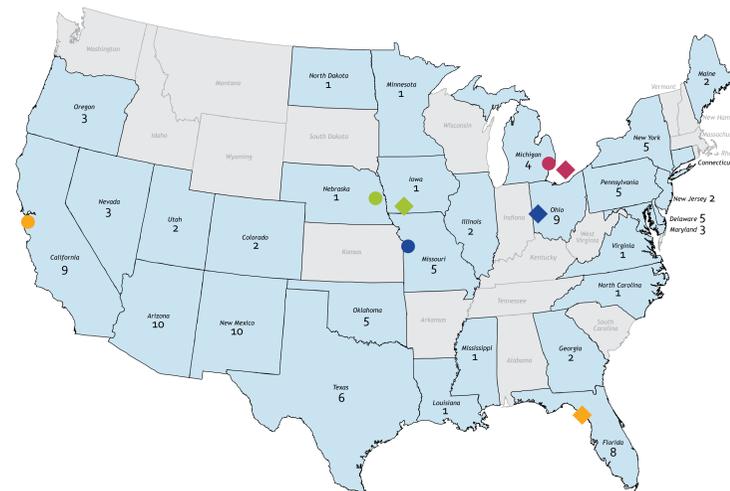
NamUs, when applied to cold cases, can return potential matches and investigative leads in a very short time, significantly improving the likelihood of a positive identification. NamUs' performance continues to improve as more agencies take advantage of the system and more cases are entered by investigators.

Current NamUs Performance Metrics

(based on cases resolved with NamUs assistance as of April 2011)

- Average time between case entry in NamUs and positive identification: 3 months for UP, 6 months for MP
- 25% of NamUs MP resolutions are cases that have been open for more than 10 years
- 32% of NamUs MP resolutions are cases that have been open for more than 5 years
- 33% of NamUs UP resolutions are cases that have been open for more than 10 years
- 46% of NamUs UP resolutions are cases that have been open for more than 5 years
- 8% of current resolutions were NamUs system matches

Numbers represent NamUs-assisted resolutions for each state



Case Resolution Geography

- Luis Fernandez**
 - Missing 4 years from Omaha, NE
 - Found Ringgold County, IA (over 120 miles)
- Ronald Norman**
 - Missing 20 years from Detroit, MI
 - Found Lake Erie/Monroe County, MI (over 50 miles)
- Paula Davis**
 - Missing 22 years from Kansas City, MO
 - Found Montgomery County, OH (over 600 miles)
- James Norris**
 - Missing 37 years from San Francisco
 - Found Dixie County, FL (over 2,700 miles)

Timelines shown above

Study Contact and Author Affiliations

National Forensic Science Technology Center
7881 14 Avenue North
Largo, FL 33773
(727) 549-6067

www.nfstc.org

Funding for NamUs is provided through Award No. 2007-1J-CX-K023 by the National Institute of Justice. NIJ is the research, development and evaluation agency of the 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.

