

Protocol Development for the Standardization of Identification and Examination of UBC Bodies Along the U.S.-Mexico Border: A Best Practices Manual

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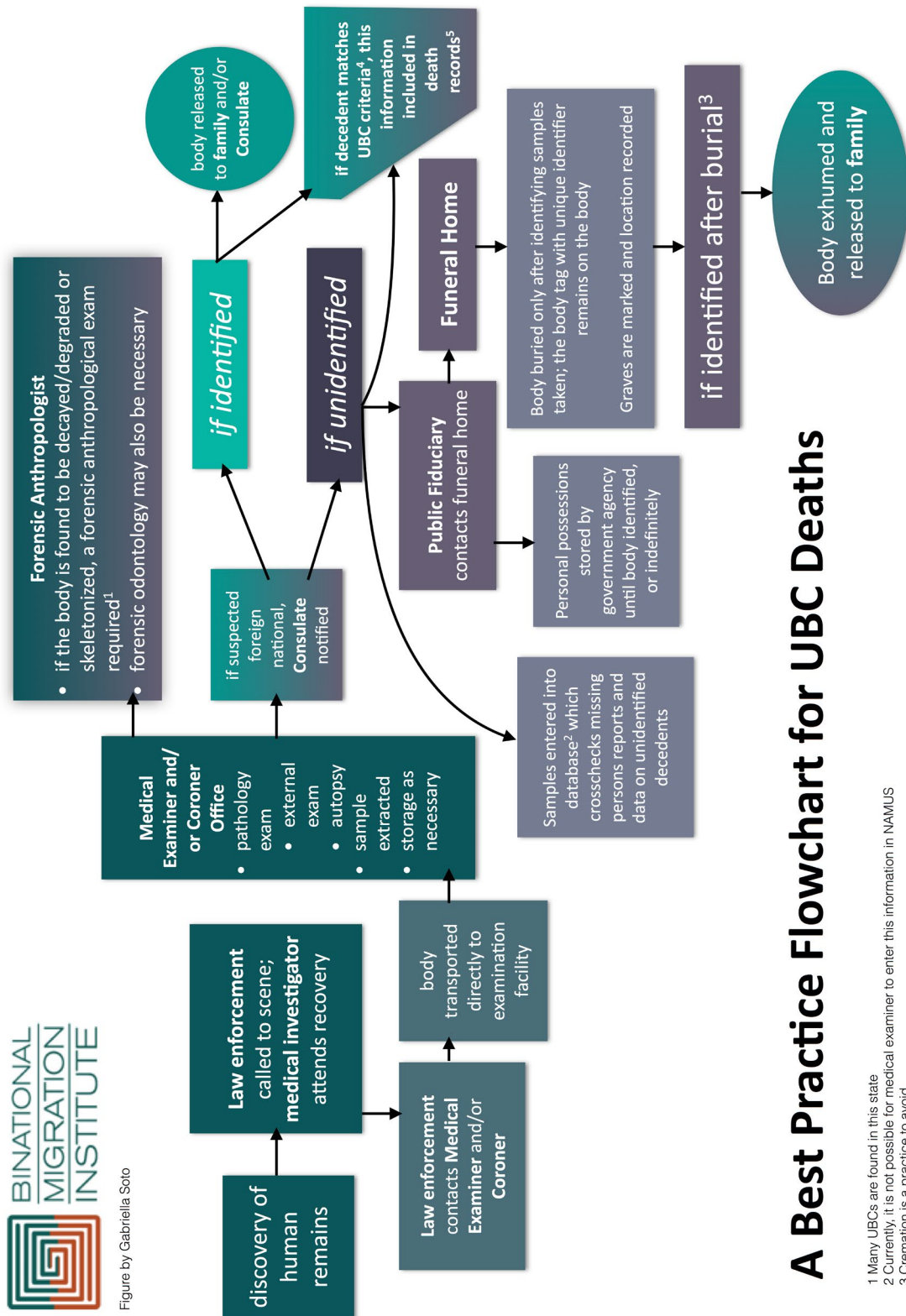


Figure by Gabriella Solo

A Best Practice Flowchart for UBC Deaths

¹ Many UBCs are found in this state

² Currently, it is not possible for medical examiner to enter this information in NAMUS

³ Cremation is a practice to avoid

⁴ These criteria are enumerated in this manual

⁵ Currently, there is no means of counting found UBC deaths as there is no standardized process for recording them

Figure 1: An infographic depicting best practice in terms of the section names. A version of this will appear at the top of each section, with the eponymous section title highlighted. This will allow the reader to visualize the stage of the process that the given section occupies.

Section 1: Protocol Development for the Standardization of Post Mortem Examination and Identification of UBC bodies along the U.S.-Mexico Border: A Best Practices Manual

INTRODUCTION

The Binational Migration Institute (BMI) proposes the use of the best practices contained in this manual in order to standardize the counting, postmortem examination, and identification of deceased undocumented border crossers (UBCs) in U.S.-Mexico border counties. Using an applied approach, this manual is the result of a project that examined established methods used to regulate the examination and identification of human remains in these counties, and used survey research and focused interview methods to gather data from medical examiners, coroners, and other pertinent officials. This data that was gathered was the basis for discussion among these professionals and the creation of this “best practices” manual that can be used in the expert training of those who struggle with the challenges of identifying human remains along the border.

CHALLENGES FACED ON THE BORDER

For almost a decade now, there has been an unprecedented increase in the numbers of known UBC deaths in the deserts and mountains of southern Arizona, primarily due to heat exposure [1][2]. The bodies of well over 2,000 men, women, and children who have been found in Arizona’s inhospitable terrain bordering Mexico have been examined at the Pima County Office of the Medical Examiner (PCOME) in ground-breaking work [3][4]. According to a 2006 U.S. Governmental Accountability Office (GAO) audit (No. GAO-06-770), border crossing deaths associated with people entering the United States without authorization have doubled since 1995. Although border deaths are attributed to a range of reasons, such as automobile collision fatalities [5], between 1999 and 2003, more than three quarters of the rise in migrant border crossing deaths along the southern border have been due to exposure to the elements, especially extreme heat. Among other things, the GAO report recommends that the Commissioner of Customs and Border Protection (CBP) ensure that Border Security Initiative (BSI) sector coordinators follow consistent protocols for collecting migrant death data from local authorities.

Nonetheless, primarily due to methodological and organizational limitations, previous research and government-generated data do not provide accurate counts of UBC recovered bodies in the United States, nor are they based on reliable, standardized criteria for identifying UBC bodies. Additionally, earlier investigations of changes in known migrant death rates in the United States over the past 15-20 years were not designed to test the now accepted correlation between immigration control policies and the rise in the UBC death toll, identified as the “funnel effect” [6][7][8].

Updating the 2006 study to include UBC bodies examined by PCOME through 2012, Martinez and colleagues [9] demonstrate that in spite of diminishing numbers of apprehended migrants attempting to cross the border through the Arizona-Sonora migrant corridor, the death rates have actually increased. Also important to note that while there is a percentage of migrants for whom a border state is their final destination, the majority are traveling through the border en route to interior areas of the United States.

BORDER STATES AND BORDER COUNTIES

For this manual, BMI looked to the counties that lie within 100 kilometers from the legal U.S.-Mexico boundary demarcation. However, geographic formations, transportation routes, and economic, social, and cultural practices demonstrate that border activities are in play in non-border counties that nevertheless lie within known migration routes. Therefore, for the purposes of this project, counties within well-known migration corridors, such as Maricopa County and Pinal Counties (in Arizona) and Brooks County (in Texas) were included. In Brooks County, Texas, in late 2012, 129 bodies of presumed UBCs were found. Of the 49 jurisdictions identified for this project, it was possible to interview officials in 35 of them. As such, the manual presented here captures data from approximately three-quarters of the counties targeted for the research. A list of jurisdictions that participated is presented in Appendix E.

CLASSIFICATION ACCORDING MEDICAL EXAMINERS AND CORONER SYSTEMS

Given the highly variable contexts in terms of the socio-political organizations across counties (see Appendix B), it is not surprising that the protocols for counting, examining and identifying the dead revealed variations.

For setting the legal and procedural foundations it is important to begin with the classification of surveyed counties according to the typology of medical examiner and coroner systems developed by Hanzlick and Combs [10]:

1. *New Mexico is type 1:* A state Medical Examiner system with no autonomous county medical examiners or coroners.
2. *Arizona is type 5:* A state with no state medical examiner, but rather, medical examiners in every county. However, in Arizona some counties with no medical examiners contract out to others for these services.
3. *California and Texas are type 7:* States with no state medical examiner, some county medical examiner systems, and some counties with county coroners. In Texas numerous counties contract out their autopsies to pathologists, medical examiners, mortuaries and at times to forensic anthropologists. The Texas system also relies on the use of the Office of the Justice of Peace as the authority that decides on the need for an autopsy.

BORDER DEATHS

A closer examination of county level interviews reveals a variety of ways in which counties, in different circumstances respond to increased migrant deaths. A factor is the high number of persons, who are strangers to the region, traveling alone. Another is that present patterns in manner and cause of death while in transit do not fit the typical scenarios of unattended deaths. For many migrants, unattended death means dying far from family, far from friends and community, who, in most circumstances would be relied upon by authorities in their efforts to confirm the identity of the deceased and investigate the circumstances of death. Absent these witnesses, dying alone in isolated and harsh physical environments often translates into multiple undiscovered remains left in circumstances of prolonged element exposure, leading to unimpeded decomposition and skeletonization. These circumstances greatly complicate identification. These conditions and other similar situations call for dedicated implementation of all procedures that will lead to identification (see Criteria for Counting UBCs info box, below).

Criteria for Counting UBCs

The ground-breaking 2006 study demonstrated that under conditions along the border, a best practices approach to the collection and recording of data was possible by way of autopsy reports that expanded the criteria used for classifying UBC recovered bodies. In this way, a more accurate accounting of border-crosser deaths was provided to medico-legal officers for gathering significant circumstantial evidence to identify UBCs. It includes the following:

1. The decedent lacks a U.S. Social Security Number, permanent U.S. residency card, or evidence of lawful U.S. immigration status.
2. The decedent is of Hispanic ethnicity.
3. The decedent is foreign-born, of a foreign nationality, foreign residency, foreign next-of-kin, and died while in transit from Mexico to a U.S. destination.
4. The body was discovered in a well-known migration corridor, or
5. Was found with or reported by other UBCs;
6. The decedent possessed personal effects or documents typical of UBCs.
 - water jugs • U.S. and foreign currency • hygiene products
 - extra clothing • phone cards • phone numbers
 - addresses of contacts in a foreign country • a backpack

Finally, surveys revealed that counties facing financial or other constraints can consistently follow requirements by seeking alternate solutions that include the help of grants, the utilization of research universities that take on examination of remains using their own funding, and other services that can undertake certain procedures for zero to minimal fees.

As a result of examining the deaths of UBCs on the Arizona border, the 2006 report by Rubio-Goldsmith and colleagues [6] first made clear the need for pertinent government agencies to provide certain procedures to ensure that policies comply with national and international commitments to identify the highest number of dead, monitor deaths due to physical violence, document the manner of these deaths, and treat bodies with respect and dignity as per established national and international protocols for the treatment of remains in a variety of contexts.

Secondly, the same report made clear the need for systematic collection of data required to develop appropriate public health policies for the border region. In general, local jurisdictions provide rules and standards for the examination of human remains and for the recording of deaths to generate important vital statistics. However, until now there is no uniform way of counting the persons who lose their lives in attempts to cross the border without authorization. Where national security concerns presuppose knowing as much as possible about who and how many persons enter the United States, the process of identifying the remains of those who have crossed into the nation's territorial space and perished is among some of the measures that are consistent with local, state, and national interests.

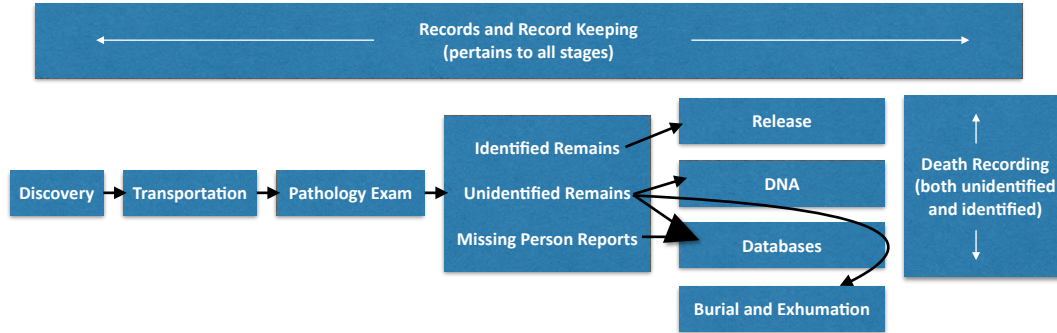


Figure 2: An infographic depicting best practice in terms of the section names. A version of this will appear at the top of each section, with the eponymous section title highlighted. This will allow the reader to visualize the stage of the process that the given section occupies.

THE ROLE OF THOSE ENGAGED IN THE COUNTING, EXAMINATION, AND IDENTIFICATION OF THE DEAD

The imperative for finding solutions to preventable misfortune continues to grow with constant migration to the United States, as former commissioner of the then-called U.S. Immigration and Naturalization Services (INS), Doris Meissner, notes in an interview in *Foreign Policy* [11]:

Migration has always been a part of the human experience, and it has been enormously positive and, at times, terribly tragic and harmful. What's new is that it is clearly occurring at a faster rate. The world is a much less fluid place in terms of nation-states and corridors and the consequences of moving.

The tragic side of the human experience has, in part, been addressed by BMI's 2006 report, *"The Funnel Effect" and Recovered Bodies of Unauthorized Migrants Processed by the Pima County Office of the Medical Examiner, 1990-2005* [6][3]. More recently the conclusions in this report were reaffirmed with the follow-up study, *A Continued Humanitarian Crisis at the Border: Undocumented Border Crosser Deaths Recorded by the Pima County Office of the Medical Examiner, 1990-2012* [9]. The resultant policy recommendations presented in these reports provide Arizona's Pima County government with a more accurate assessment and analysis of both the nature of these deaths, and their impact on this county's medical examiner's office.

STRUCTURE OF THE MANUAL

This manual is meant as a guide to address inconsistencies in basic procedures to count, identify and examine the remains of presumed UBCs. Its organization follows the general flow of activities involved in achieving the ultimate goal of returning human remains to families. A flowchart (Figure 1) of best practices at each stage of death investigation is provided. The manual is not meant to rewrite other best practice manuals, but rather, to draw attention to practices and methods involved at each step of a body's itinerary, and cumulatively, increase the probability that remains will be identified.

The manual has been divided into 11 sections. The flowchart shown in Figure 2 mirrors the organization of the manual, showing how each manual section fits into the overall itinerary of human remains as they are discovered, examined, identified, recorded, and released.

Each section of the manual will summarize the inherent issues at the stage of the process. The issues are limited to those pertinent to the border region context. This will be followed by an exposition of a set of proposed best practices that may aid in responding to the issues and provide recommendations where appropriate. Lack of local infrastructure and resources has meant that officials must exert many more good faith attempts to comply with all legal requirements.

In general, this manual includes best practices that respond to:

1. Laws regulating unattended deaths are fundamentally local in nature. With exceptions for federal intervention, the general principles guiding best practices that can be applied all relevant jurisdictions. While local authorities demonstrate good faith compliance with state and federal regulations and in keeping with norms for providing dignity and respect for the deceased, with the prolonged crisis of migrant deaths, localized interventions and academic studies have called for the reexamination of procedures. In some cases, these studies have reaffirmed established practices, while in others they have called for changed and recommended new procedures.

The research revealed that counties facing financial or other constraints to implementing new or additional methods or procedures can follow legal requirements by seeking assistance. Such assistance can come in the form of grants, services provided by research universities able to conduct postmortem examinations using their own resources, and/or other state or federal services available at little or no cost.¹

2. The numbers, nature and variety of places where border deaths that have occurred during the last 12 years have challenged established procedures for postmortem examination. In this regard, three principles emerged as the basis for determining best practices:
 - There is a need for procedures and systems that result in the accurate identification and counting of the human remains of UBCs in each jurisdiction.
 - There is a need for procedures and systems that promote the best possible methods for data collection and improve the accuracy of records that can be used for vital statistics data to inform a wide range of public policy areas, including public health.
 - The discovery of undocumented human remains may contain evidence of, or provide leads to evidence that may aid legal professionals and law enforcement officials in a range of human criminal investigations including, but not limited to:
 - c. Human smuggling, including organized crime related offenses such as extortion, corruption, racketeering, and participating in or assisting a criminal syndicate.
 - d. Homicide, including (1) premeditated murder, (2) felony murder, (3) intentional killing without premeditation, (4) causing death by conduct showing extreme indifference to life, (5) reckless manslaughter, (6) negligent manslaughter. To the extent that planned crimes on the receiving end of human smuggling do not become completed due to the death of the person being smuggled, evidence may be sufficient to prove preparatory crimes of (1) conspiracy, (2) attempt, (3) facilitation and/or (4) solicitation.

¹ The legal information in this manual is general. Laws change frequently and vary from state to state. Therefore, this manual is not intended as a substitute for identifying current legal responsibilities. The Binational Migration Institute accepts no responsibility for those who rely on this manual as a substitute for identifying legal responsibilities.

- e. Kidnapping
- f. Rape
- g. Various forms of forced labor crimes
- h. Dangerous crimes against children, if minor children are the victims, including crimes-against-children enhancements for which greater punishments apply.

Additional state and local crimes may be occurring that involve recruitment, transportation, and transfer or harboring of smuggled persons that ends in death. These may include threat or use of force, coercion, abduction, fraud, deception, abuse of power or vulnerability, or giving payments or benefits to a person in control of the victim. There may also be elements of criminal exploitation, which includes exploiting for prostitution, sexual exploitation, forced labor, slavery or similar practices that include the sale/removal of organs. The development of more localized laws has been uneven across border states, with many of the laws enacted by states facing legal challenges. Notable amidst this trend is the state of Arizona, where a range of criminal laws have been developed or modified in response to the rising number of undocumented immigrant deaths and organized human smuggling syndicates.

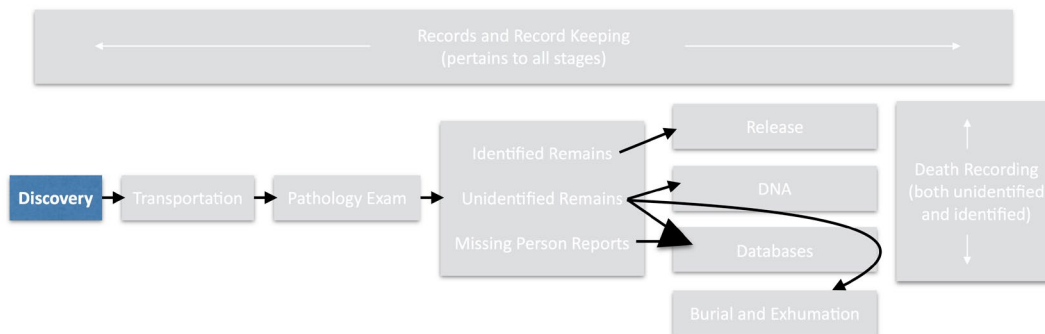
Successful prosecution of the above-stated criminal activities requires rigorous collection of evidence. This manual proposes practices that will allow for the best collection of evidence throughout each step of the examination process of the remains of UBCs discovered in the border region. In following the practices outlined in this manual, there is sufficient guidance to comply with the legal nexus between practices and the collection of evidence for the prosecution of the aforementioned crimes. Therefore, we recommend that officials be properly trained in these practices.

3. Considering that forensic experts from both national and international organizations have already created excellent manuals for forensic best practices, this proposed manual builds on these in order to concentrate on the empirical evidence that points to needs specific to the examination and identification of remains of migrants in the border region.
4. Considering that the formulation of adequate procedures and accurate data depend on accurately classifying which remains are those of UBCs and which are not, a standard criteria for recognizing UBCs is essential (see Criteria for Counting UBCs box). PCOME has tackled this issue and it is this particular development that has allowed government and NGOs to gain a clearer picture of the crisis the border faces. Previous methods such as autopsy reports by the PCOME and the U.S. Border Patrol's Border Safety Initiative Tracking System (BSITS) for reporting overlooked or excluded classes of UBC deaths from published counts. The 2006 study based on the autopsy reports from Pima County [6] recommended adding further characteristics to the criteria used to identify UBC deaths.

The manual addresses the issues that arise from the expanded use of DNA and DNA databases in law enforcement, designed to aid law enforcement in their investigation of possible criminal activity (see section on DNA). There are no federal limits on the use of DNA database information and only eight states explicitly prohibit the use of database information to obtain information on physical traits, predisposition to disease or medical or genetic disorders. This raises numerous concerns, not the least of which is the ability of practitioners and officials to use such databases

in the context of identifying UBC remains while complying with norms for obtaining informed consent and privacy rights of persons and families of the deceased (see section on Databases). Given the aforementioned, relatives of missing persons may be reluctant to provide their DNA with full knowledge that it can be used by law enforcement for other law enforcement purposes. Thus, in the effort to aid in the identification of human remains of missing persons, efforts should be made to provide procedures that (1) allow for unique pseudonym submission of relative DNA to permit comparison search on a missing person while protecting the privacy rights of relatives, or (2) develop a procedure to require missing person databases to remove - after search and comparison - the DNA sample and DNA profile of relative DNA submitted for this purpose.

Section 2: Discovery of Remains & Evidence Collection



INTRODUCTION

Effective examination and identification of UBC remains will largely depend on piecing together evidence that is collected at the initial stages of recovery of those remains. Therefore, this section highlights issues related to UBC remains recovery and a set of best practices addressing well documented circumstances under which UBC deaths are known to occur. Many best practice suggestions are taken directly from other national and international best practice manuals related to body recovery and postmortem examination. Publications by organizations such as the International Police, the International Committee of the Red Cross and Red Crescent Societies, and the World Health Organization are considered. Other best practices have been derived from the data itself.

ISSUES

Issues surrounding body recovery when pertaining to UBCs fall into four categories which will be discussed here: (1) jurisdictional boundaries; (2) remoteness of discovered bodies and issues related to accessibility; (3) decomposition of bodies related to exposure; and finally, (4) multiagency involvement in the initial stages of recovery, creating issues related to interagency variations in protocol.

Jurisdictional Boundaries

1. Jurisdiction is a particular issue for UBC body recovery because of the proximity of an international border.
2. Depending on where a body is recovered, jurisdictional responsibilities may differ. If the body is found in the Rio Grande, it may fall under Mexican or United States' legal jurisdiction. In this manual, we only deal with local, state and federal procedures on the United States side of the border.
3. The federal government does not designate which federal agency has jurisdiction of bodies recovered in the federal border spaces. On the Rio Grande, the mid-point of the river is technically the international boundary. Because bodies may float back and forth, a loophole opens for both countries to avoid claiming jurisdiction, along with the financial, physical and bureaucratic obligations that body recovery requires.

- This loophole may affect investigations of criminal activity beyond the scope of migrant death investigation. If the body is in a questionable jurisdictional area, the existing loophole could be exploited for criminal purposes.
4. The determination of the border is not always clear. As per the latest treaty in 1970 addressing this issue, the International Boundary and Water Commission of the United States and Mexico has ultimate authority to determine the exact boundary. However, this is still debated, leaving a legal vacuum.
 5. A similar jurisdictional issue exists at county borders. When a search and rescue group from one county finds a body in an adjacent county, there is often a legal question of who should ultimately be in charge of the remains. Given budget constraints and other rationale, some officials interviewed reported that they often tried to avoid claiming jurisdiction over the body.

Remoteness / Accessibility

1. The remote, sparsely populated terrain in the border regions where most UBC decedents are found, challenge the initial phases of body recovery.
2. The process of transporting a body is made difficult when facing rugged terrain accessible to, and often only by a four-wheel-drive vehicle.
3. Managing for the needed personnel to get to the scene often entails coordination of multi-agency efforts, as well as special equipment.

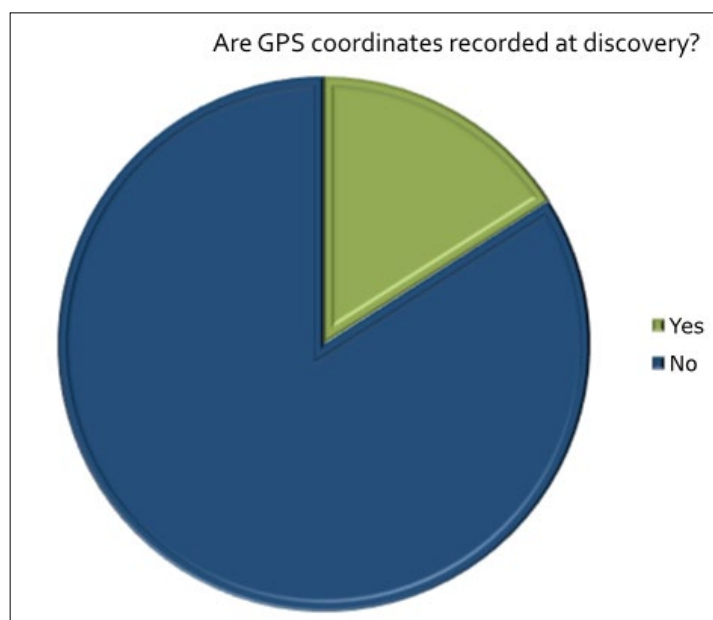


Figure 3: According to data gathered from officials involved in discovery, GPS coordinates are taken at the scene of a body's discovery only 16 percent of the time.

Recording the coordinates of discovered remains

The coordinates of discovered remains are seldom recorded (see Figure 3). This information is useful for statistics and records.

Body Decomposition due to Exposure

1. In the desert climates along the U.S.-Mexico border, decomposition of exposed human remains is accelerated compared to other places. Because of this, many times important identification markers on UBC remains are altered or destroyed.
2. This is often an issue for UBC death investigations where individuals are traveling clandestinely and anonymously through remote territories; as a result, they are often not discovered for some time, and then only by happenstance.

3. Because a body is highly decomposed, signs of the cause of death are obscured due to the state of body decay. Beyond the fact that a cause of death should never be assigned at the scene, decomposition makes such assignments more questionable. However, based on survey responses, 57 percent of respondents

reported that cause of death could be determined at the scene when unknown and exposed remains are encountered (see Figure 4). If cause of death is determined at the scene, a body is less likely to receive an autopsy.

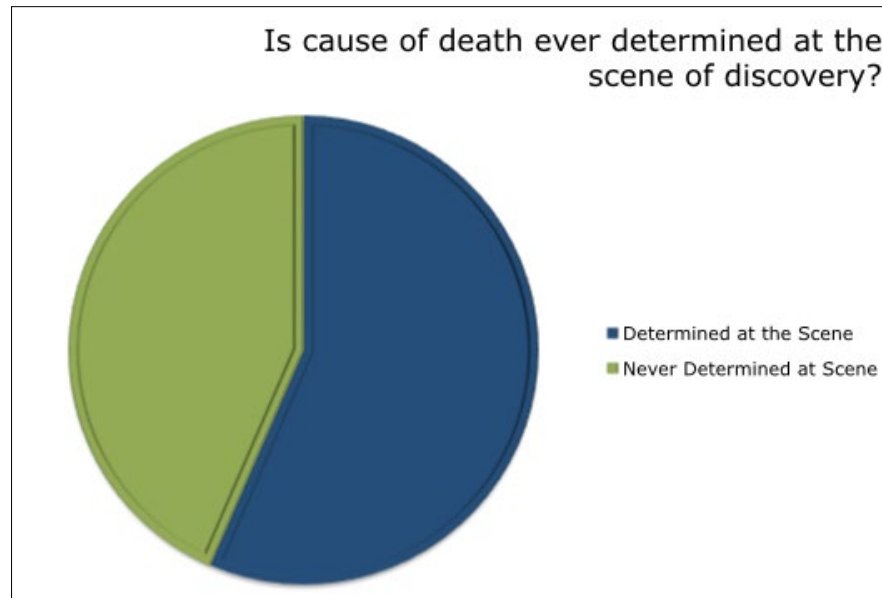


Figure 4: According to data gathered from officials involved in discovery who responded to the question, cause of death is determined at the scene of discovery 57 percent of the time.

Protocol Variation between Agencies

1. A host of agencies may become involved with the recovery of bodies, including but not limited to: Border Patrol, state police, sheriffs' offices, local police, justices of the peace, coroners, medical examiners, park rangers, and other wildlife officials (see Figure 5). With different sets of protocols related to decedent recovery and principles of scene preservation for investigation, this often becomes an issue. For example, some agencies may deem it acceptable to determine cause of death at the scene, and thus decide whether or not a body will be autopsied (see Figure 4).
2. Evidence obtained at the site gathered by law enforcement agency in charge but released piecemeal to various investigative units throughout the investigation process makes it difficult to account for all collected evidence.
3. Investigation forms vary among departments and bodies may be assigned different unique identifying case numbers by each investigative unit. This state of decentralized recording systems pose problems when tracking a particular case due to the lack of standardized case numbers.

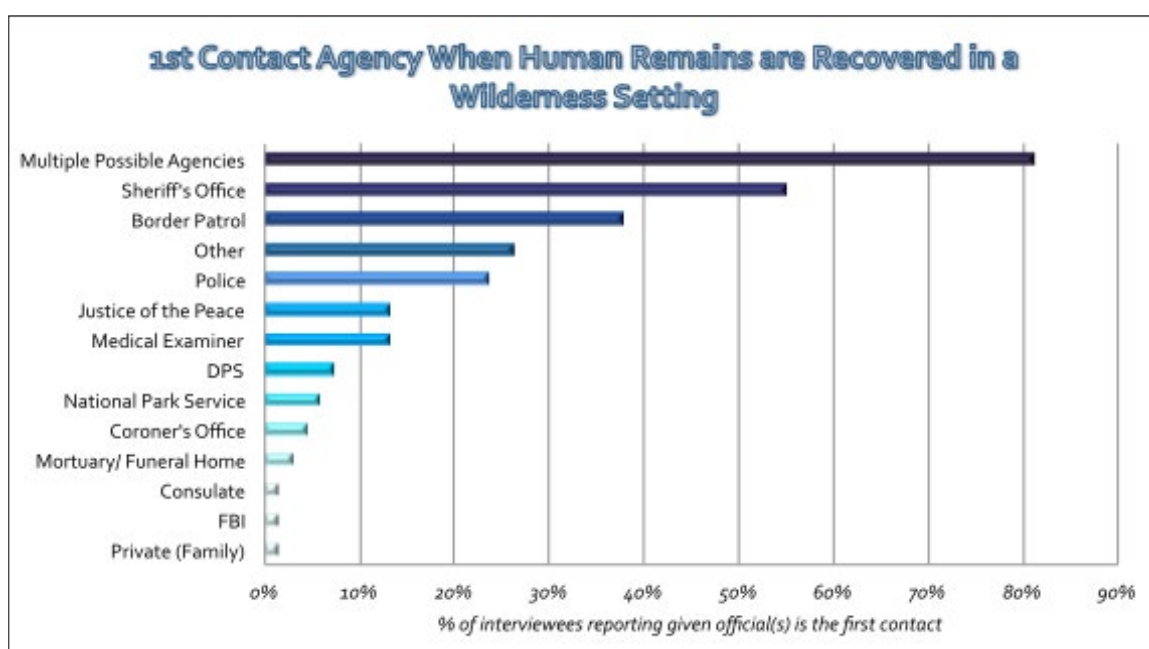


Figure 5: Our survey asked participating officials to name the first agency point of contact when a body is discovered in the wilderness. Many times, the agency contacted varied depending on circumstances. Almost 80 percent of the time, multiple points of contact were named. This graph is meant to highlight the multi-agency complexity that exists in the body recovery stage.

BEST PRACTICES

Criteria for Identifying a UBC

1. For bodies discovered in areas where UBC deaths are known to occur, there must be some evaluation of whether or not the body is a UBC.
2. Identifying a body as a presumptive UBC must be evaluated through a preponderance of evidence, where a combination of the following criteria are common indicators:
 - The decedent lacks a U.S. Social Security number, permanent U.S. residency card, or evidence of lawful U.S. immigration status.
 - The decedent is of Hispanic ethnicity.
 - The decedent is foreign born, of a foreign nationality, or has a foreign residency. The decedent may have foreign next-of-kin, and died while in transit from Mexico to a U.S. destination.
 - The body was discovered in a well-known migrant corridor.
 - The body was found with or reported by other UBCs.
 - Associated with a body were personal effects or documents typical of UBCs (e.g., water jugs, U.S. and foreign currency, hygiene products, extra clothing, phone cards, phone numbers or addresses of contacts in a foreign country, and a backpack).

Jurisdiction

1. There needs to be a clear determination where U.S. jurisdictional boundaries end, so that responsibilities are more clear. For this to happen, federal legislation must be clarified, and federal officials must be clearly designated to recover bodies in federal space.
2. Officials should be properly trained in the parameters of jurisdictional domains.
3. A significant number of UBC bodies are found unattended. Therefore, each medico-legal officer (medical examiner or coroner) should be familiar with practices within the officer's area to ensure that all cases falling within his or her jurisdiction are properly investigated. If there is any doubt as to jurisdiction, the medico-legal officer should assume jurisdiction [12].

Remoteness / Accessibility

1. Global Positioning System (GPS) coordinates should be recorded at the *discovery site* and before repositioning the body or remains [13]. These coordinates should be placed in the discovery report.
2. GPS coordinates should be recorded in a national database for missing persons.
3. Remains should be transported in a body bag and/or a stretcher wherever possible [15][13]. For additional information relating to the transporting of remains to a secondary site, please refer to the Transportation section of this manual.
4. A best practice is to set up an Open GIS (OGIS) system for recording where all suspected UBC remains were recovered (see Pima County and Humane Border's Open GIS website for recovered remains: <http://www.humaneborders.info/>).

Evidence collection to facilitate investigation, especially when bodies are found decomposed

1. Appropriate techniques for securing the scene should permit the association of material evidence and/or remains in a scientifically sound manner. This should apply to scenes of all scales, from a single body to motor vehicle accidents where multiple fatalities are involved [14].
2. Human remains should be collected by trained forensic specialists and/or criminologists and evidence gathered at this stage should be preserved in case it is needed to assist in identification at a later time [15][13].
3. Evidence should be secure, and a chain of custody should be established as a measure to preserve and secure this evidence [14].
4. Archaeological principles call for sound association based on provenience of evidence and remains relative to incident [14]. This is especially important in the case of skeletal, disarticulated, and co-mingled remains

- Forensic archaeological practices should include controlled searches of the area, aiding in location, survey, sampling, recording, and interpretation of evidence. Archaeological principles call for scene investigators to determine body taphonomy, and external processes related to body position, and decay. These principles aid in the conservation of evidence to determine the relevance of artifacts and identification of scene anomalies for investigation [16].
 - Personal effects and any related materials in the extended surrounding areas should also be documented and collected [17][18][13][14].
5. The recovery process is unavoidably destructive, so a clear documentation process is crucial [14].
 6. During the recovery period, law enforcement should not remove any objects from the individual's clothing and/or place items in their clothing [15][14].
 7. Photographs of the scene and close-up photos with and without a measuring ruler should be taken. Different angled views of the scene should also be taken as well as several close-up photographs of the discovery scene and remains [17][18][13][16].
 8. The discovery site should be well-documented in the forms of field notes, maps, unique identifiers of plotted specimens, and photos [16].
 9. Evidence found at the scene should be properly packaged, sealed, labeled and inventoried. Specific investigative protocols, procedures and techniques for evidence collection and storage should be followed [17][13].

Protocol Variation between Agencies

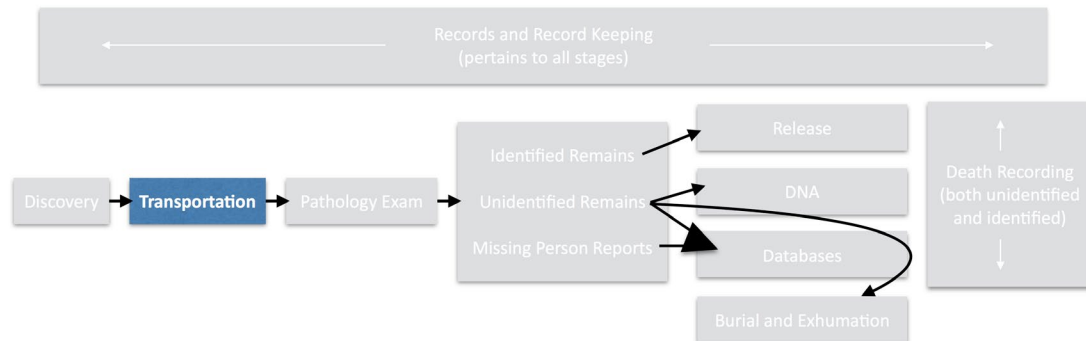
1. All entities involved in the recovery of UBC remains should introduce basic training programs and instruction on different aspects of evidence collection, including recovery techniques. This training should also consider social, cultural, religious, legal, and psychological aspects of recovering remains. For example, nothing should be done which would likely violate the religious beliefs of the decedent or his or her family, to the extent these are known or can be deduced. Also, officials must consider that the family will want to know that the body was treated with respect during recovery [13].
2. Forensic specialists should be at the scene to assist law enforcement in the investigation and preliminary determination of death [17][18][15][13]
3. Receipt/transfer of evidence between agencies (e.g., from sheriff's office in charge of body recovery to medical examiner in charge of pathology exam) should be recorded and signed by the receiving and transferring officials [15].
4. To aid the multi-agency recording of evidence collection, storage of any evidence and investigative documentation should be centralized.
5. The final cause of death should not be determined at the recovery site [17][15][13].

6. The cause of death should be determined *only* by authorized forensic medical experts after a comprehensive evaluation, and not at the scene [17][15][13].
7. Investigational reports should contain specific information relating to the recovery and investigation of UBC remains [18].
8. Tracking numbers should be used for remains to facilitate communication across all law enforcement and non-law enforcement entities [17]. For additional information relating to the records, please refer to the Records Section of this manual.

Notes for Families

1. The state of recovered remains may be important to family members' grieving process. NGOs specify that families as victims should ultimately have access to all recovery data. However, criminal investigators may cause delays.
2. Families should have access to GPS location of recovered remains, as well as the report on the search and inventory of basic items found.

Section 3: Transportation



INTRODUCTION

Transportation of the remains of suspected UBCs in the U.S.- Mexico border region provides unique challenges to law enforcement officials, members of the Border Patrol, and medico-legal personnel, often due to the remote regions where the remains are often discovered. These areas are not easily traversed and in some cases may not be accessible by roads. Oftentimes, law enforcement personnel must use off-road equipment such as ATV's (All Terrain Vehicles) or motor vehicles with four-wheel drive capacity. In most cases these vehicles are not capable of properly transporting remains in a way that is both respectful and conducive to their preservation.

Transportation should never be delayed, due to the rapid degradation of remains that have been exposed to heat and/or elements. Body decay affects the ability of medicolegal officials to determine the identity of an individual.

ISSUES

Refrigeration and Storage

Interviews along the border region indicate that refrigerated vehicles are often available only through the private contracting of mortuaries, funeral homes, and other establishments that might have access to such vehicles.

Lack of government services may provoke unseemly contractual agreements for transportation.

Based on evidence gathered in the study, it appears that due to a monopoly on body transport vehicles in an area, mortuaries are able to charge exorbitant prices to the county for transportation services.

BEST PRACTICES

Transfer all bodies from the death site to a covered, refrigerated vehicle or storage unit as soon as possible.

1. Bodies should remain covered during transport, both out of respect for the deceased and to ensure bystanders are not subjected to viewing decomposed remains [17].
2. Delay should be avoided in body recovery to reduce the loss of important identifying evidence to rapid decomposition of remains [19].
3. Refrigeration is a key element in the transportation of remains from harsh crossing regions to medical facilities, and should be used whenever available.
4. Civilians, hikers, hunters and all non-law enforcement, non-medico-legal personnel should never be permitted to transport or deliver discovered remains.

Pouch (née body) bags

1. Pouch bags (known vernacularly as body bags) should always be used, to prevent the loss of important, identifying evidence.
2. Pouch bags should be used when transporting remains. If pouch bags are not available the remains should be wrapped in cloth and contained as much as possible [20][17].

Body parts

Individual body parts, such as limbs, should be treated as individual bodies if recovered without other associations [20].

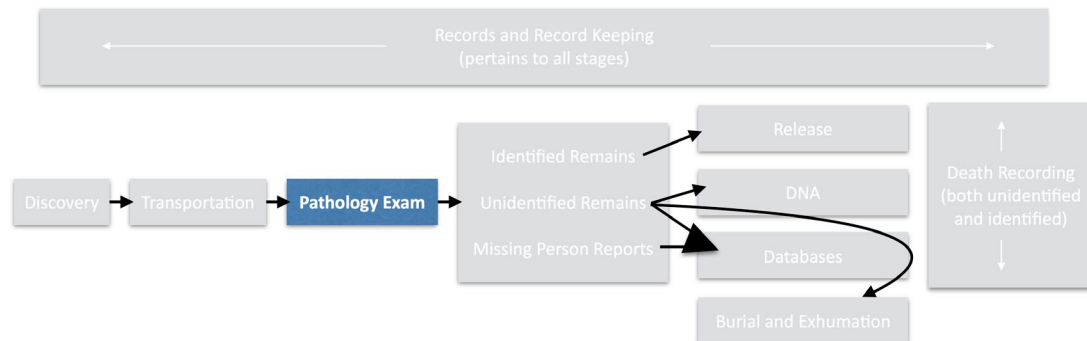
Personal belongings

Personal belongings should be transported alongside remains, to aid in identification [17].

Contracts with private entities

1. Fiscal transparency should be a part of all contractual agreements for transportation.
2. However, for both 1) maintaining control of a body and 2) long term savings, counties should own vehicles for body transportation.

Section 4: Pathology Exams



INTRODUCTION

In states and counties throughout the U.S., there is variation in protocols pertaining to medical examination after a dead body has been discovered. This lack of standardization has been recorded in studies conducted by organizations like the Center for Disease Control and the National Academy of Science, among others [12][21]. This creates a number of problems in circumstances of suspected foul play and when bodies are found outdoors or unattended. And even though this is a national problem [21], the situation is even more complex on the U.S.-Mexico border as medico-legal personnel have faced disaster-scale death numbers as undocumented border crossers have sought clandestine entry into the United States through the remote wilderness areas of border counties. The lack of standardized protocol means a variation in what may be considered a rigorous procedure for identifying both cause of death as well as the name and next of kin of the decedent [12]. In this section, we present an example of what standardization might entail, including the supplemental autopsy form for UBCs used by the PCOME (Figure 8, pages 25 and 26).

ISSUES

Decomposition / Exposure of Remains

Exposure to the elements after dying in an outdoor setting, especially a desert, and not being immediately recovered means that remains will often be sufficiently decomposed as to obscure or erase any superficial identifiers (e.g., facial features, and even clothing and personal effects) [22].

UBC Deaths and Their Impact on Counties

1. According to interviews conducted with border county officials, a repeated theme was the sense that they were left to deal with a dramatic increase of human remains with no federal assistance and county budgets that constrained officials from taking the most basic and indispensable measures to identify bodies.

2. Many county officials reported deliberately triaging what cases can be rigorously processed. What this means in practice is that bodies with no superficial evidence of foul play will not always be autopsied and bodies found with identification cards will be considered as identified without any additional corroborating forensic evidence of his/her identity.

Absence of forensic experts / equipment

The findings of this study have shown many counties along the border do not have immediate access to the medical professionals or basic equipment, like X-ray machines, critical to postmortem examinations.

BEST PRACTICES

This section is not intended to take the place of medical training and credentialing. The intention is to outline the necessary steps within and importance of pathology exams.

Forensic experts on the scene

Forensic specialists should be involved in all work related to the recovery and examination of human remains. When this is not possible, protocols to facilitate future evaluation by forensic personnel should be designed and followed. What this means is that at a future date, these personnel should be able to access the body, all information available on the circumstances of death and the ensuing condition of the decedent in order to properly investigate the cause of death, and in the cases of unidentified individuals, to find the decedents' identities and reunite them with family [17].

When it is known that a forensic specialist will not be immediately available to examine the remains, relevant offices should develop an organizational standard operating procedure (SOP) to handle remains systematically, in ways that will facilitate future forensic attention [17]. Personnel who lack training in these procedures should be thoroughly briefed in advance of their managing decedent cases. Non-medical personnel should never conduct internal examinations.

However, external exam methods by non-medical personnel may include those procedures that:

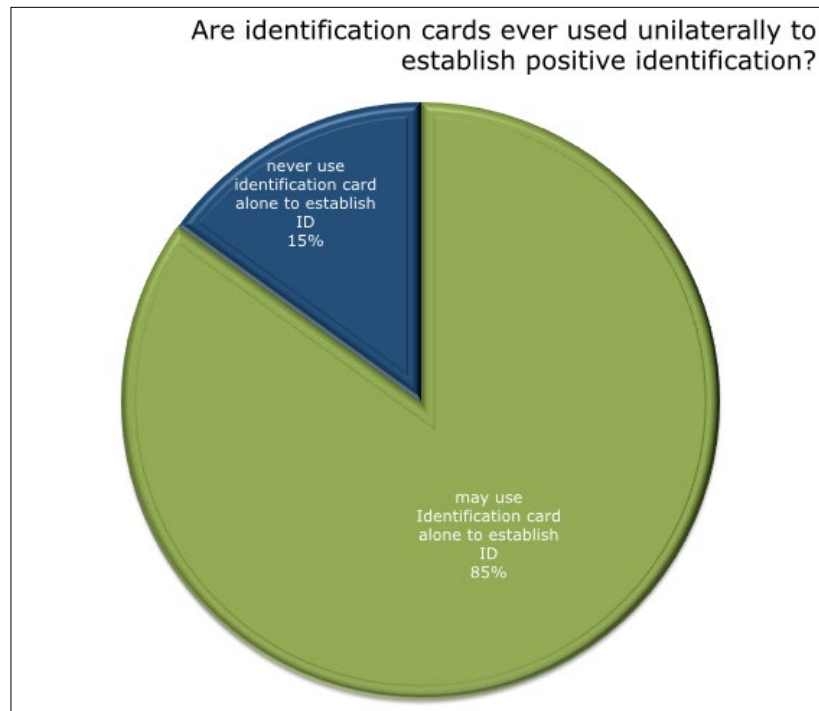


Figure 6: Based on recorded responses to survey questions, 85 percent of officials who answered this question indicated that identification cards along were sometimes used to establish the identity of UBCs.

1. will facilitate the remains' future evaluation by forensic personnel;
2. involve documentation of external conditions and personal effects associated with recovery of the body; and
3. will prevent the future disorganization and loss of information, crucial to the future identification of the body [17].

Information – such as DNA samples – collected by non-specialists will have no value unless it is evaluated by specialists [17].

Examination Facility

1. The facility should include a separate area with a water source and drainage, as well as a place for cleaning and drying, especially when consistently dealing with badly decomposed remains [17][15].
2. Ideally, separate stations should be available for all processes: receiving, forensic exams, radiography, evidence processing, storage and release of the bodies [15].
3. Radiography (X-ray) equipment should be available.

External Exams

Material Needed [17]

1. Material needed includes an ink pad (for fingerprinting);
2. Plastic or metal markers;
3. Plastic bags with labels (for belongings and samples);
4. Surgical gloves with masks and shoe covers,
 - These should be used for any direct contact with bodies [17]; and
5. A camera and/or video equipment.

Reference Number

All bodies should be assigned a reference number. If this does not occur at recovery, a number should be assigned when the body reaches the medical examination facility [17].

1. A reference number should be associated with a date and place of body recovery [17].
2. This number should be attached to all records related to the individual to whom it is assigned [17].

*Data to collect (see Figure 7)**DNA*

Protocol for **DNA collection** from decedents will be detailed in the section entitled DNA.

Fingerprints

1. Before prints are taken, hands and feet should be cleaned and dried [15].
2. Prints from all of the fingers on both hands, starting with the left little finger should be taken [17]. Two sets must be recorded [18].
3. If the fingers on the body are too dessicated for fingerprinting, there are numerous procedures for their rehydration [23]. Hands may have to be removed as a last resort.
4. Fingerprinting is a possible form of positive identification. Records of prints should be kept for unidentified individuals and uploaded to an appropriate database. Refer to the section on Databases for more detail.

X-rays and CT scans should be taken of the entire body and teeth

The following should be used for forensic radiological specialists and also forensic anthropologists to look for/record [15][18]:

1. Internal implants, previous injuries or surgical procedures that may allow for the identification of the decedent [15][18];
2. Foreign objects found lodged inside the body [15][18];
3. Age of the decedent [15];
4. Dental radiology [15], including
 - Molars on both sides with jaws together,
 - Upper and lower molars with premolars and incisors, and
 - Teeth with special features (e.g., crowns).

Samples

Hair samples: A sample of the hair should be taken, including roots to the extent possible and placed in a plastic bag with a body's unique reference number [17][13]. This can be used for DNA analysis [17].

Dental samples: Preferably, sampling should be done by a dentist, forensic odontologist, or an appropriately trained individual [15].

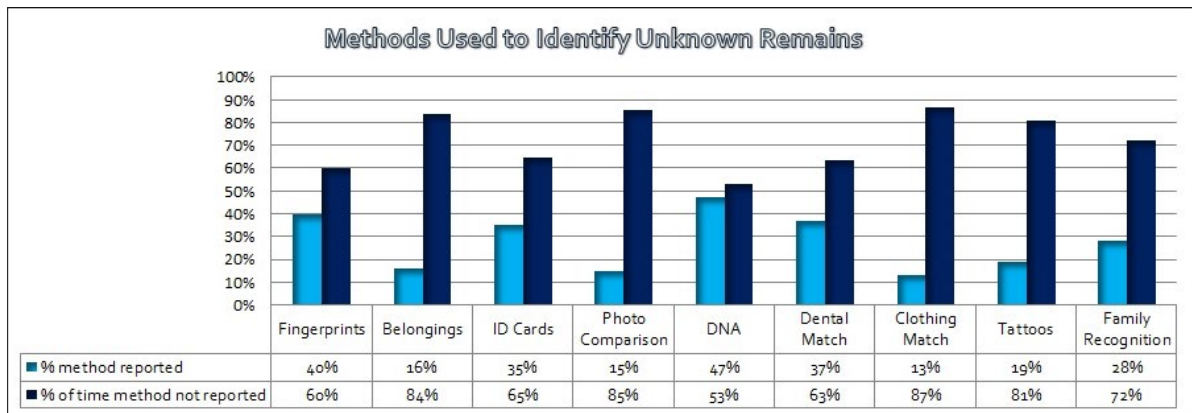


Figure 7: Based on the results of survey, officials involved in the pathology exam reported a range of possible samples collected for the future identification of body. Officials reported all practices known, which also allowed statistics to be generated on samples not collected by some county offices.

- Forensic anthropologists have identified certain dental characteristics that may point to a region of origin for many undocumented migrants, such as the presence of “shoveled” anterior teeth [22][23].
1. Assessment of teeth may include [15]:
 - incising soft tissues,
 - cleaning of teeth and jaw, and
 - evaluation of dental quality.
 2. The jaws of the decedent should only be removed when necessary, as the process is destructive and can be viewed as an act of mutilation by family members. Only in extreme circumstances should such a measure be considered, usually at the discretion of the examiner. If removal does take place, measures should be taken to minimize the damage and after the fact, to replace any tissues [15]. If this is not possible, the removed jaw should be kept with the body, usually placed at the head of the laid-out corpse to facilitate for future examination [15].
 3. Dental records are particularly important as they represent a means for positive identification. Dental X-Rays and other identifying materials should be kept for unidentified individuals and uploaded to an appropriate database, such as NamUs (see Appendix F and Databases section for a discussion of this database).

Personal effects

1. Personal effects should be stored in a *separate container* marked with the associated body’s unique reference number [17][15][18]. The plastic evidence bags must be sealed to prevent contamination [15]. Note that certain objects may have trace DNA of the victim on them, to allow for DNA sampling and identification [15].
2. All personal effects should also be photographed with the unique reference number visible in the photo [17][18][13].

3. Ensure that personal items are stored in a place where they will be kept dry and not wear or degrade. These items should be stored until a body is identified and/or the effects can be returned to the family . Alternatively, they should be photographed, and photographic records should be kept on file with decedent records [17].

Records

Records for each individual decedent should be kept in an electronic file attached to the body's unique reference number (see Figure 8 for an example). If not an electronic file, then hard copies should be kept in a secured place in the examination facility [17]. Records should include:

1. Approximate age;
2. Weight;
3. Height;
4. Sex;
5. Possible ethnic affiliations [15][13];
6. The likely cause of death, if possible [17];
7. Lists of the personal effects, including specific descriptions of items found on or around the body, including jewelry, wallets, contents of wallets, etc. [17][15];
8. Descriptions of clothing, as well as tags and marks on said clothing [17];
9. Descriptions of obvious marks on the body, e.g. tattoos, moles [17][15];
10. Descriptions of obvious injuries on the body, e.g., scars or more recent wounds [17][15]; and
11. Descriptions of any prostheses. If these include serial numbers, these should be recorded and tracked as a means of identifying their owner, the decedent [15].

For identified bodies

1. Full name;
2. Date of birth; and
3. Any other particulars related to the person's identity [17].

For Mass Fatality Incidents (e.g., motor vehicle accidents) record

1. The time elapsed since the incidents;
2. The number of bodies involved;
3. A description of the general state of remains at the incident; and
4. The names of the people who have died in the same incident [17].

Photography

Photography should take place once the body reaches autopsy facility. Details for photos taken at the scene of discovery will be found in the section on Recovery.

A body's unique reference number should appear in all photographs, whether it is written on a piece of paper included in the photograph, on a whiteboard, or other similar material [17] [13]. The preferred medium of photos is a digital camera, such that images can be stored in unique files associated with each decedent [15].

Facial Photos

1. Facial photos must be taken, with the face taking up the full frame of the image [15] [18][19]. The face must be cleaned before the photo is taken, to the extent possible[18][13].
2. Additionally, photos of the teeth must also be recorded, including:
 - A view of the closed mouth with lips retracted to show the front teeth [15], and
 - Dentists should be consulted as to the specific other angles needed for correlation with their records [15].
3. Close up photos of parts of the mouth showing specific dental procedures or abnormalities should be taken [15]. Again, forensic anthropologists working on the border have conducted studies correlating specific dental characteristics to regions of origin for undocumented migrants [22][24]. As such characteristics could prove essential for narrowing down the identity of a decedent, these characteristics should be photographed.

SUPPLEMENTAL AUTOPSY PROTOCOL FOR UNKNOWN PERSONS

ML # _____ Dr. _____ Date _____

Name association: _____

Source of name association: _____

UBC: Y N Likely

Viewable face: Y N Partially

Fingerprints obtained: Y N Pending

Hands removed: Y N

Body Condition Stage: 1 2 3 4 5 6 7 8

Estimated PMI: _____

FEATURES OF IDENTIFICATION

Sex: M F ? **Estimated Age:** _____ **Complexion:** _____

Height: _____ inches **Weight:** _____ pounds **Teeth:** _____

Head Hair: Color _____ Length _____ **Facial Hair:** Mustache Goatee Beard

Scars/Marks/Piercings (size, shape, location): _____

Tattoos (description, location): _____

Other unique features: _____

Figure 8: Supplementary autopsy forms from the Pima County Office of the Medical Examiner. These ensure that PCOME gathers necessary data to facilitate future identification of unknown persons, especially useful given the high number of UBC remains examined by this office. As will be further explained in the next section on Identification, many UBC remains enter the medical examiner's office as John or Jane Does.

*Please photograph each item or piece of clothing, front and back, with a label next to the item but not covering it such that the label may be cropped prior to NAMUS entry.

Figure 8 contd: The reverse side of the PCOME autopsy form records details about personal effects.

Body Photos

1. Full length photos of bodies should be taken [15][13].
 - The subject of the photo should take up the full frame of the image [15][13].
2. Overlapping photos of the upper and lower portions of the body should also be recorded [15][13].
3. If the body is skeletonized, ensure full body photos are taken, as well as individual photos of unique skeletal features [18].

Tattoos and Markings

1. Note any obvious injuries, and photograph them [15][13].
2. When dealing with individual marks, a scale should be visible in the picture to provide reference as to the size of the marking [15].
3. Consult with forensic pathologists as to whether specific/more detailed photos of certain abnormalities or pathologies should be taken [15].

Personal Effects

1. In addition to personal effects being photographed in situ during recovery, they must also be cleaned and photographed during the external exam [15][13].
2. These must be photographed with a macroscopic lens in front of a non-reflective background to ensure full display of item details [15].
3. All distinguishing features of personal items must also be individually photographed, including clothing labels and credit card numbers, among other things [15].
4. Photos of all markings and labels on body bags should be recorded [15].

Autopsy*Autopsy Objectives*

1. These include, identifying cause and manner of death;
2. Establishing a postmortem interval between death and recovery;
3. Finding the identity of the decedent / obtain samples for identification; and
4. Documenting injuries and evidence that could be of benefit to legal investigators and others attempting to identify the victim [15].

Internal examination should only be conducted by individuals with medical training and credentialing. This manual is not meant as a technical guidebook for conducting an autopsy. Rather, this section simply outlines the important role of the procedure in a body's postmortem itinerary.

Autopsies are mandatory for cases of suspected foul play, unknown or unattended deaths, and unidentified remains [15][13]. As UBCs are commonly recovered from the wilderness, their cause of death should never be assumed and each individual should be autopsied to investigate both cause of death, and to take forensic samples which could lead to the individual's identification.

As an autopsy is conducted, a forensic pathologist and autopsy assistant should be present, and all instruments should be cleaned to prevent contamination of the physical evidence [15].

A supplemental autopsy protocol for unknown persons as elaborated by the PCOME (see Figure 8) should be adopted as a high number of UBCs are unknown. The following checklist enumerates the best practices that should be followed for unidentified remains.

Autopsy Records

1. Note any internal scarring, or other evidence of past surgical procedures as well as medical devices implanted through intrusive procedures [15].
 - Devices inside of the body such as intrauterine devices and pacemakers should have serial numbers that can be used as a direct means of correlating the decedent with his or her identity [15].
2. Note aspect and position of external injuries and broken bones [15].
3. Describe position and visible patterns of traumas to the body, internal and external, including: bleeding, fractures [15].
4. Note previous surgical procedures and internal implants [15].
5. Note unique/distinguishing anatomical features of decedent [15].

Samples

Samples should be taken from all unidentified bodies for toxicology and DNA [15] (see sections on Databases and DNA).

Forensic Anthropology

Anthropological examinations should only be conducted by individuals with advanced training and usually, a Ph.D. in forensic anthropology.

Due to highly decayed remains of body found on the border, forensic anthropologists should be utilized much more often than in other contexts.

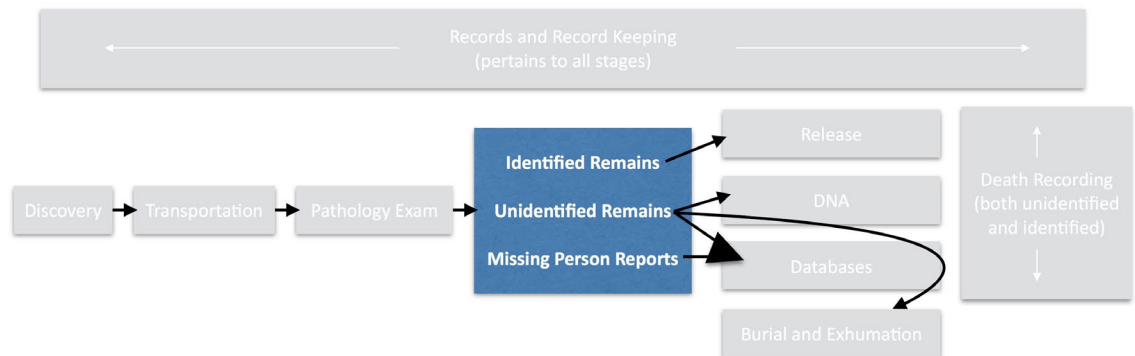
1. Forensic anthropologists should work in close cooperation with the forensic pathologists assigned to the decedent [18].
2. As pertains to highly decayed, mummified or skeletonized remains, the profile of individuals created by forensic anthropologists can reveal basic identifying characteristics that are unattainable through the pathology exam alone. These otherwise unattainable characteristics used to establish deceased UBCs include:

- facial approximation [25],
- sex [26],
- stature [27],
- age [28],
- ancestry [29],
- a history of trauma [30],
- pathologies [31],
- and taphonomic processes that a body might have undergone before recovery [32].

Body Storage

1. Storage should be in a facility with secure entry [17]. Bodies should not be stored in a location readily accessible to the general public [17].
2. The location should facilitate the loading and unloading of bodies by transport vehicles [17].
3. The facility should include a separate area with a water source and drainage, as well as a place for cleaning and drying, especially when consistently dealing with older and/or desiccated remains [17][15].
4. Bodies should be stored at a temperature of approximately 40 degrees Fahrenheit [17] [15][13].
5. The location should be dry [17].
6. If dry ice is used for cooling, it should not be placed in direct contact with the body as it can cause burns [15][13].

Section 5: Identified, Unidentified and Missing Migrants



INTRODUCTION

The ultimate goal is to identify a decedent or human remains so that these can be released or repatriated to the proper authority or family member. In reaching this goal, three scenarios are considered (see Figure 9):

1. The human remains are identified, allowing these to proceed to their release and/or repatriation;
2. The identification of a deceased individual or human remains is not achieved; and
3. When identification is not achieved, investigators resort to the use of missing persons reports (MPRs) and databases.

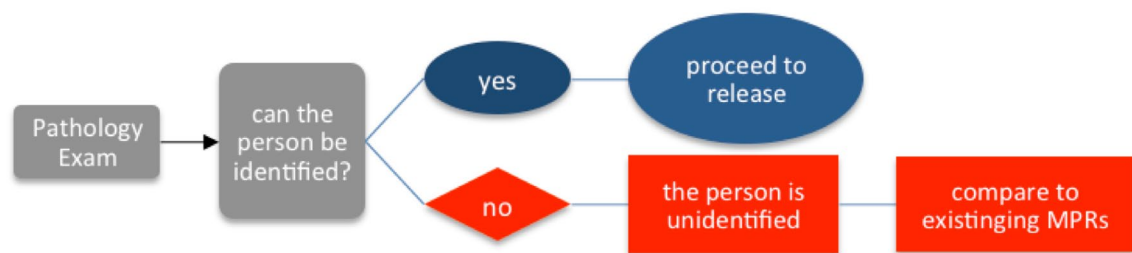


Figure 9: A flowchart to illustrate the trajectory of remains if a body is identified or unidentified after a examination.

The identified

Identification may occur immediately. When identification of a UBC takes place, the medical examiner or coroner notifies the Consulate, who should contact the family and prepare for the body's release. The protocols for release are detailed in the section on Release.

The unidentified

When identification cannot be readily ascertained, a set of procedures follows, which are outlined in this section.

The remains of UBCs represent a population of people who are consistently unidentified after death. In both Texas and Arizona, over a third of probable UBCs are unidentified. The numbers in Texas have only been systematically collected since 2010, where at least 47 UBC decedents remain unidentified since 2012, although this number has likely increased [33]. In Arizona, data has systematically been collected since the 1990s. From 1990 through 2012, over 760 UBC individuals remain unidentified [9]. In Arizona, most of these individuals died after 2001 [9][4][6].

The missing

Within the U.S., relatives of missing persons are routinely directed to law enforcement to file a missing persons report [34]. This standard process is disrupted when the relatives are undocumented immigrants fearing deportation, and thus, will not report to police. Many relatives are seeking answers from within their home country. However, missing persons reports continue to be one of several tools that may aid an investigation, resulting in the identification of unidentified remains. Additionally, most police agencies will not take reports for missing migrants because they are not US residents, or were recently deported.

Though the PCOME has fielded over 1,300 reports of missing migrants since 2001, it is not known whether these individuals died in other states, are among the unidentified, or have survived [9]. Hundreds of reports of missing UBCs have been taken in Texas since 2012 [33]. At issue here is being able to coordinate reports of the missing to unidentified dead bodies border wide. As the population of UBC remains represents a high number of missing and unidentified in border states, it is important that they be the focus of any efforts to coordinate unidentified remains and missing persons reports.

ISSUES

Decentralization

1. Relatives of missing migrants are reporting to various officials within their country of origin, to consulates and embassies, to humanitarian organizations, immigrant rights groups, Border Patrol, journalists, private investigators, academics, and to county medical examiner's and coroner's offices. This has created massive decentralization and disorganization of data regarding missing persons last known to be crossing the U.S.-Mexico border.
2. Even for non-migrants, there are over 40,000 unidentified persons investigations across the United States; and tens of thousands of people go missing under suspicious circumstances every year. Only 6,000 missing persons reports – an estimated 15% - have actually been entered in a national database. Meanwhile, state and private databases are being irregularly populated and there is no interface between agencies [35][36][34] (See the Databases section for an extended discussion on this topic).

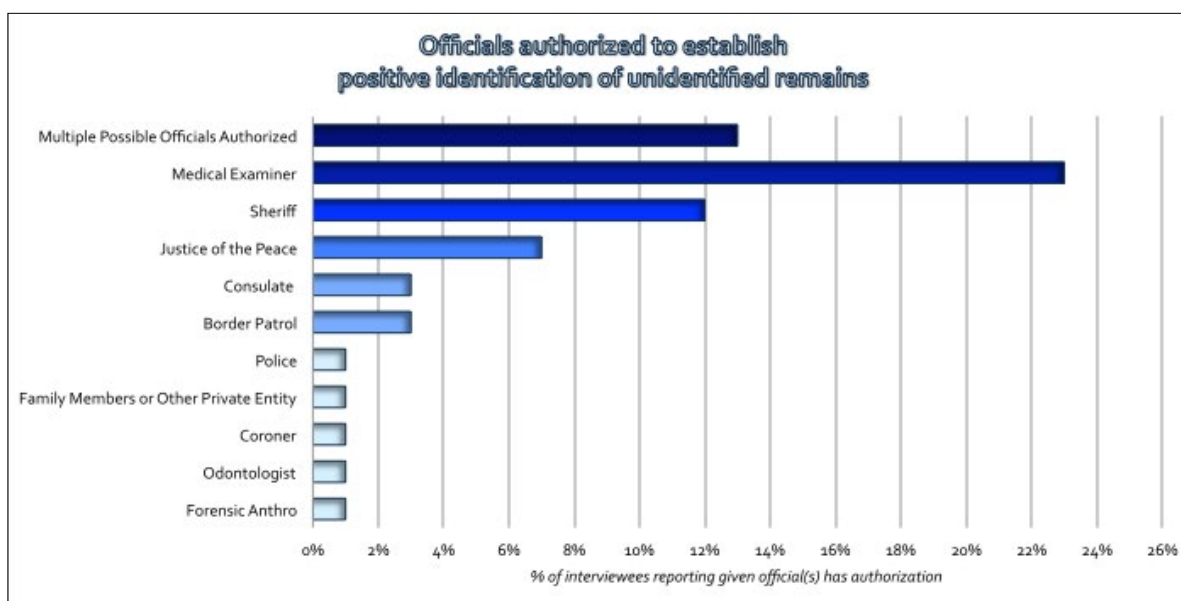


Figure 10: Based on reports received from survey, a range of officials are authorized to establish a positive identification on remains. Some jurisdictions reported multiple officials with this authorization. This adds to decentralization and violates the proposed best practice that only medical examiners or forensic anthropologists possess the necessary medical training to establish positive identification.

Falsified Identity Documents are Used by Some Border Crossers

Identification documents are sometimes used to unilaterally identify individuals. But, this is problematic because people sometimes travel with false documents (see Figure 6).

Untrained personnel establish positive identification on unidentified UBC remains

As illustrated in Figure 10, law enforcement and others who are untrained in establishing positive identification are establishing the identification of unknown remains.

Lack of clear national guidelines for how to proceed with unidentified remains

National guidelines or procedures for identifying the unidentified are vague or nonexistent. There are no requirements that identifying samples be taken or that information on the decedent be uploaded to a database for future crosscheck with missing persons. There are many different local regulations for how unidentified remains should be disposed of after release [21].

Entering data into NamUs at this stage is not possible

1. Profiles of unidentified remains cannot always be entered into NamUs (see Discussion of NamUs in Databases section, and in Appendix F). This is because, up to this point, NamUs only allows law enforcement to enter information. However, medical examiners and coroners can be selectively approved to enter data.
2. Postmortem examinations do not always provide sufficient information for a submission into NamUs (see section on Databases for more information).

For families

For families, decentralization means that those who wish to report a missing loved one must often make this report multiple times: to several NGOs, various government agencies, and others. The issue is that these entities that take reports may not be sharing information with the coroner or medical examiner office if the missing individual is deceased, and/or if his or her body has been recovered. For families, this also means experiencing multiple traumas with each missing report and uncertain results.

BEST PRACTICES

The identified

There are three stages for identifying human remains (illustrated by Figure 11):

1. Establishing an identification hypothesis;
2. Circumstantial identification; and
3. Positive identification.

Establishing an identification hypothesis

It is important that positive identification is distinguished from an identification hypothesis. An identification hypothesis links one or more details from an unidentified body to a missing person, but is not a scientifically rigorous form of identification and should be followed up with fingerprints, dental records, or DNA testing (see sections on Pathology Exams and DNA).

Any one or combination of the following criteria may be used in the establishment of an identification hypothesis, NOT a positive identification:

1. A possible match of the available evidence to records within the NamUs database, depending on the information;
2. Matching the available evidence to a profile of a missing person;
3. Evidence matching specific clothing, dentition, identifying tattoos, or scars;
4. The presence of identification documents matching the name of a missing person; and/or
5. The presence of phone numbers of relatives of a missing person.

In and of itself, an identification hypothesis, is not a sufficient form of identification. A preponderance of evidence is needed to establish an identification hypothesis.

Circumstantial identification

A circumstantial, or presumptive identification may be established if there are no unexplainable inconsistencies between the decedent and the missing person. Circumstantial identifications are not viable in a court of law, and must be agreed upon by the family and the

medico-legal personnel in charge. However, they are, in and of themselves, considered an acceptable form of identification. Positive identifications are always preferred, but circumstantial identifications may be preferable to the family for expediency and affordability.

Circumstantial identifications may be made through [37]:

1. Direct visual or photographic identification of the deceased (only if visually recognizable), or
2. A consistency of related factors, such as
 - time of death with time of disappearance,
 - age,
 - height,
 - presence of unique physical characteristics such as tattoos or dentition, and/or
 - clothing and/or identification media.

It is critical that all points of comparison are checked before a circumstantial identification is made. The presence of an identification card matching the name of a missing person should only be a factor contributing to the identification hypothesis, because some UBCs travel with false identification. A circumstantial identification is only warranted if all details match, and if there is a compelling reason not to pursue methods of positive identification.

Positive identification

Positive identification means establishing a one-to-one physical link between the missing person and a specific set of unidentified remains.

Positive identification can be obtained using three technologies:

1. **Comparison of DNA** taken from the decedent to DNA taken from immediate relatives (refer to the Databases section for further discussion of DNA and privacy);
2. **Comparison of fingerprints** taken from the decedent to fingerprints taken from the missing person during life; and/or
3. **Comparison of radiographs** (either skeletal or dental) taken from the decedent to radiographs taken from the missing person during life.

Those authorized to establish a positive identification must have specific training and authority in the technology of comparison being used. For DNA, a molecular geneticist has the authority to interpret DNA results. For fingerprints, law enforcement or medico-legal investigators with certificates in fingerprint comparison have the authority to establish a positive or negative match between sets of fingerprints. For the comparison of radiographs, the person with the authority to declare a match or an exclusion should be a forensic anthropologist or forensic odontologist (see Figure 10 for a representation of the range of people

able to authorize positive identification in a border context).

As stated, there are three categories for identification: Identification Hypothesis, Circumstantial Identification, and Positive Identification. Although positive identification or scientific identification is necessary for criminal cases, for UBCs, who may not be involved in criminal activity, circumstantial identification and identification hypotheses are acceptable.

The unidentified

After the stages for identification are followed, and a set of remains is yet unidentified, the remains must be stored. Refer to the section on Release for more information on storage.

After a person is classified as unidentified, a missing person crosscheck should be performed to match the decedent information with missing persons.

Missing Person Crosscheck

1. After all identifiable information has been obtained from the decedent, it is crucial to compare the complete profile to relevant missing persons (see profile reflected in Supplementary Autopsy Form for Unidentified Individuals, Figure 8). While there is currently no complete, centralized, and fully accessible database of missing migrants, there are ways to ensure that data about unidentified remains can be matched to profiles or reports of missing persons.
2. Missing person reports should be sent to the appropriate authorities (See section on databases).

The missing

Because so many agencies receive missing persons reports, resulting in decentralization, the best practice is that all reports be archived in a centralized system accessible to families, medical examiners and coroners across the border. See section on Databases for additional information.

Taking Reports

For relatives calling medico-legal offices directly, the following process is recommended:

1. Collect a basic missing persons report.
2. Send this basic missing person report to the consulate of the country of origin of the missing person and/or immigrant rights advocacy groups or human rights NGOs.
3. Because of the problems with NamUs referenced above, currently some NGOs have taken the initiative to create a new dedicated database for suspected UBCs.

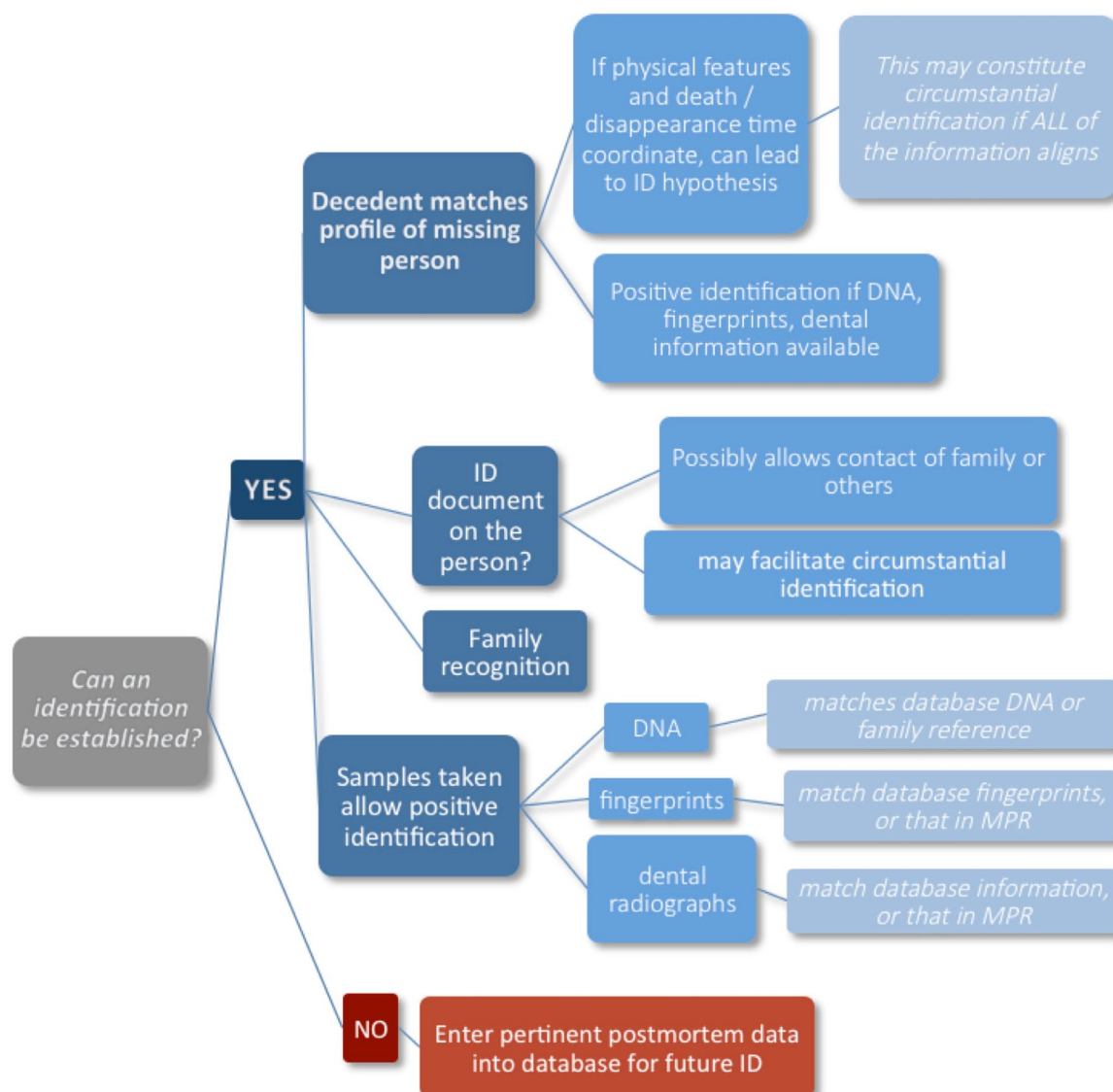
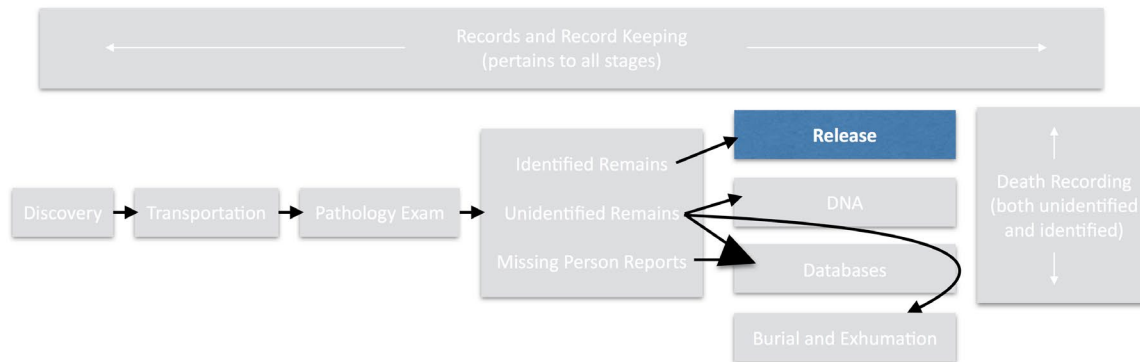


Figure 11: This flowchart illustrates the types and stages of identification outlined in the Best Practice section.

For Families

1. Families of missing can report their loved one to appropriate authorities. A number of NGOs, including the Argentine Forensic Anthropology Team, Coalicion de Derechos Humanos, Colibri Center for Human Rights, and No More Deaths take missing persons reports.
2. Immigrant rights advocacy groups and human rights NGOs have informed the best practices outlined here to promote families' victims' rights. They are often the mediators between families and officials.

Section 6: Release



INTRODUCTION

State laws may dictate the manner of disposition of the remains, and as a matter of principle, every family is expected to have the opportunity to involve itself in the decision making process for the disposition of remains. The National Center for Forensic Sciences stipulates that human remains cannot be released until positive identification by one or more of the recommended methods are completed (using methods of forensic human identification, including fingerprints, dental traits and genetics, and information such as identification of clothing or personal effects). Upon identification, the decedent should only be released to the next of kin [13].

ISSUES

Families, even if located, are not always consulted for the release of remains

1. Because of the typically unattended deaths of UBCs, families may not be involved in the release of remains, nor are they also present during the release stage of the process.
2. When families are undocumented and living in the United States, they are often reluctant to come forward to claim the decedent.
3. There is often a lack of translators for families of non-Spanish speaking migrants, such as Maya K'iche or Maya Ch'orti', among other indigenous dialects. This inhibits families from being able to work with law enforcement, medical examiners, or coroners to identify and/or claim their deceased loved one.

Mortuaries

Among officials interviewed for this study, some related that their experience with some mortuaries led them to suspect unethical practice, mainly because mortuaries lacked oversight. Specifically, oversight to regulate body storage, family fees, and services rendered was variable or non-existent, which gave unscrupulous parties a chance to extort counties. Recent investigative journalism provided evidence that mortuaries have overcharged families and local jurisdictions for services, or charge for services that are not actually provided [38][39].

BEST PRACTICES

For the reasons stated above, the following guidelines may be of assistance to medico-legal officers and morticians to facilitate the timely and dignified release of the remains to the morgue for burial, cremation, storage, or for the return of the remains to families.

In general, the medical examiner/coroner is expected to accomplish and document the following to ensure the chain of custody:

For Identified Remains

Notification of next of kin

The medical examiner/coroner is expected to follow rules regarding the notification of the legal next of kin. Where appropriate, in cases of fragmentation and commingling of remains, the medical examiner/coroner is expected to explain to the families the options for disposition of any subsequently identified remains before releasing incomplete remains.

1. Medico-legal officers and morticians should treat all recovered personal effects with care because of their importance in the identification process as well as their intrinsic value to the families.
2. The same medico-legal officers should conduct a plausibility check of identified bodies prior to release to a mortician.
3. Care should be taken before releasing bodies that are not whole, as this may complicate subsequent management of associated body parts.
4. A family should have the right to a copy of all records involved in the discovery, examination and release of loved ones. This also includes all personal effects.

Morticians

Morticians should perform the following functions as part of their protocol for the release of identified and unidentified remains:

1. Receive bodies/body parts from the Medical Examiner or Coroner;
2. Issue a receipt record (proof of the chain of documentation);
3. Provide storage and proper cooling of bodies/body parts, as appropriate;
4. Provide a registration of bodies for the purpose of documenting the location of bodies at a given time;
5. Coordinate efforts in the organization of the transport of bodies to their final resting place; and
6. Adopt specific protocols for unidentified remains.

Unique Reference Numbers

1. All bodies should be stored with a unique reference number attached to them [17].
2. The reference number should be given to BOTH identified and unidentified remains, in case a body is exhumed.
3. A microchip allows personnel to locate a body post-burial. In New Mexico, a chip is inserted under the skin of a body that allows medico-legal personnel to take a DNA sample and permanently apply the unique reference number to the individual.

UBC Statistics

Before release, each suspected UBC should be enumerated and thus, recorded, regardless of whether or not s/he is identified. This is to allow collective statistics of border crossing deaths.

Accessibility of undocumented remains to families

Families of undocumented border crossers should be able to claim the remains of their loved ones without putting themselves in danger.

For Unidentified Remains

Release of associated/unassociated personal effects

Items associated with the body or the remains should accompany remains when they are transferred to the morgue. The medical examiner/coroner is expected to document these items, enlist them in the identification process, and facilitate their return. The medical examiner/coroner is also expected to implement a mechanism to safeguard cash and valuables.

Release unclaimed personal effects to the agency designated to receive those effects (such as a public fiduciary) or dispose of them according to existing local protocol.

Body storage at research facilities

1. Bodies may be stored indefinitely at research facilities without any financial obligation to counties. However, transport to such facilities should be regulated by counties.
2. Texas State University's Forensic Anthropology Center at San Marcos will store unidentified migrant remains indefinitely, which is a better and more cost effective alternative to storing bodies in mortuaries.
3. A specific protocol to regulate research on bodies when stored at a research facility should be developed and followed. In the case of unidentified remains, the absence of a party to give informed consent for the body's use in research points to a number of ethical issues.

Mortuaries

1. Fee and time limits should be implemented for the storage of unidentified remains. Remains should never be stored indefinitely at private mortuaries.
2. Mortuaries and mortuary officials should be open to background checks and audits.
 - In open bidding contracts with counties, mortuaries, mortuary officials and county officials in charge of contracts should be vetted to identify possible conflicts of interest. For example, if the county official with authority to award such a contract has a possible financial stake in the mortuary itself, this represents a conflict of interest. County officials or agencies with conflicts of interest should recuse themselves from the contract award process.
3. When released to the mortuary, remains will still be under governmental jurisdiction.

Public fiduciary

1. Many counties release unidentified remains directly to a public fiduciary. The public fiduciary authorizes and manages cremation or burial orders.
2. The public fiduciary should be a regulatory mediator between ME/Coroner and mortuary to prevent decisions based on financial incentives. The fiduciary is a necessary part of chain of custody.
3. There should be no conflict of interest between the public fiduciary and medico-legal personnel. Care should be taken to eliminate political and economic conflicts of interest.

Storage times for unidentified

An ME, coroner, or official acting in that capacity should decide how long to store bodies.

Samples must be taken before release of unidentified

1. Currently, although laws do mandate taking DNA and other samples before the release of unidentified remains, this does not always happen (see section on DNA for an expanded discussion).
2. A release protocol, as shown in Figure 13, may assist to ensure all appropriate steps have been taken prior to the release of unidentified remains.

Cemetery

1. Cemeteries should be responsible for the maintenance and record-keeping for each burial and each plot.
2. Cemeteries must keep accurate maps identifying placement of individuals (see section on Exhumation for an expanded discussion).

Practices to avoid

If there must be cremation, it should occur only *after* all appropriate samples are taken and the body has been subject to full examination.

ML # _____

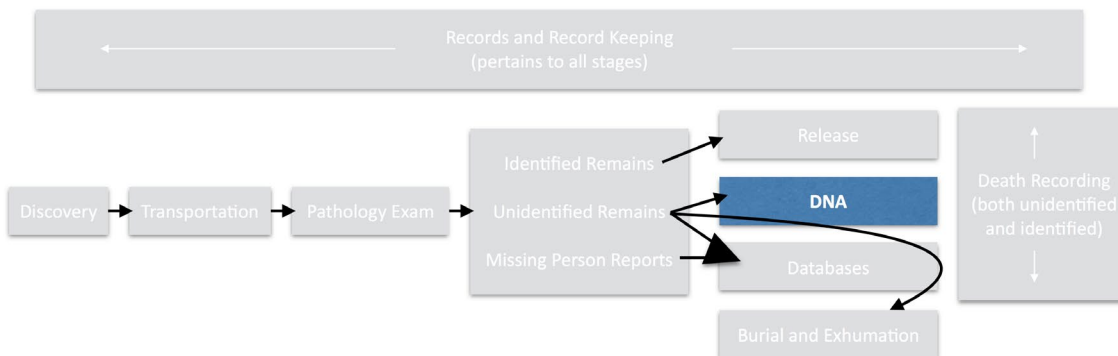
Release Protocol for Unknown Persons

- Y N **PCOME pathologist consulted regarding intent to release**
- Y N **Law enforcement agency contacted for update (recorded in file)**
- Y N **Identification media received with remains (recorded in file)**
- Y N **Other personal property received with remains (recorded in file)**
- Y N **Photographs taken of remains:** Digital Prints
- Facial Skeletal Dental work Tattoos Other distinguishing features
- Y N **Fingerprints recorded from remains (one set retained at PCOME)**
- Y N **Fingerprint comparison attempted by:** LE USBP FBI # _____
- Y N **Forensic Anthropology exam completed**
- Y N **Dental chart made from remains**
- Y N **Dental radiographs made from remains:** Films DEXIS images
- Y N **NCIC dental chart submitted to appropriate law enforcement agency**
- Y N **Remains radiographed:** Head Chest Spine Limbs Full body
- Y N **Tissue sample indefinitely retained for submission to DNA lab:**
- Blood Bone Dental Hair Other
- Y N **Clothing photographed** Y N **Clothing laundered**
- Y N **OGIS search conducted**
- Y N **Entered into NamUs (UP # _____)**
- Y N **NamUs search conducted (please attach list of “Possible MP Matches”)**

Version: 24 May 2013

Figure 12: Release Protocol for Unknown Persons from the Pima County Office of the Medical Examiner. This checklist is effectively a protocol for PCOME to ensure that unknown decedents are not released without all data taken to facilitate future identification, even when the remains leave this office’s jurisdiction.

Section 7: DNA



INTRODUCTION

Identification through DNA is one of the most rigorous forms of positive identification, and is highly recommended. To use DNA for identification, at least two sets of DNA are necessary, a sample from the unidentified decedent and at least one from a biologically related family member (a biological mother or father, siblings who share a mother *and* father, and biological children), or a spouse *and* a shared biological child [37]. However, postmortem investigation practices on the border do not always include taking a DNA sample from each unidentified UBC. At the same time, numerous obstacles limit family members' submission of family reference samples for DNA comparison. Although Mexico has made progress organizing the taking of biological samples from families, as have several Central American countries, lax attention to the plight of UBC missing and unidentified does not encourage family participation. Non-governmental organizations such as the Argentine Anthropology Forensic Team also organize the collection of family reference samples.

Proper taking of samples is merely the first part of the process that includes the collection, preservation, recording, analysis and comparison, if DNA is to help identify human remains. Comparisons require the existence of databases that archive reports of UBC unidentified deaths. As such, the collection of missing persons reports in appropriate databases is the second part of the equation needed for DNA identification. At a national level, the National Institute of justice manages NamUs (National Missing and Unidentified Persons System) and the FBI maintains CODIS (Combined DNA Index System) (see Databases section for more details).

ISSUES

DNA is not systematically sampled for unidentified UBCs

1. Not all border jurisdictions responsible for postmortem investigations obtain a tissue sample for DNA comparison. Often lack of county funds is the principle factor (see Appendix B for a discussion of statistical estimations of social vulnerability in border counties). During survey, only 50 percent of officials could confirm that DNA was always taken on unidentified remains before release.
2. Other times, county officials have not received adequate training and simply do not know which services are available at the state and federal levels.

Families may be hesitant to provide DNA reference samples

Potential family members are often hesitant to provide DNA samples because they do not trust either their own government or that of the U.S. Fear of providing information for deportation or possible criminal investigations is widespread. But, without a sample for comparison, identification using DNA is not possible [40][41] (see section on Databases for an expanded discussion on privacy rights).

Informed Consent

Considering the high risk UBC families may have in providing DNA reference samples, informed consent is of primary importance. However, it is not routinely obtained as reference samples are entered into databases which do not protect their identities.

The federal law that regulates the use of humans in scientific research is called the Common Rule (45 CFR 46), the Federal Policy for Protection of Human Subjects, which lists stipulations for parental consent and requirements for informed consent. Common Rule provisions for informed consent do not apply for research involving only “the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens”. It also does not apply to data that is “recorded by the investigator in such a manner that subjects cannot be identified” [42]. Unless DNA is compared in databases that do not record identities of subjects beyond the investigator searching for a match, informed consent is legally mandated.

DNA samples are costly and/or not possible

1. The basic analysis of DNA material is costly, and consequently, families, county governments, or foreign governments often cannot afford this procedure.
2. Ultimately, with the exception of the Center for Human Identification at the University of North Texas (UNT), costs are an obstacle (see Figure 13). However, many county officials were not aware that UNT would process DNA samples without cost to the submitting agency (see Figure 14).
3. Currently, there is no convenient means for family reference samples from outside the United States to be analyzed by UNT.

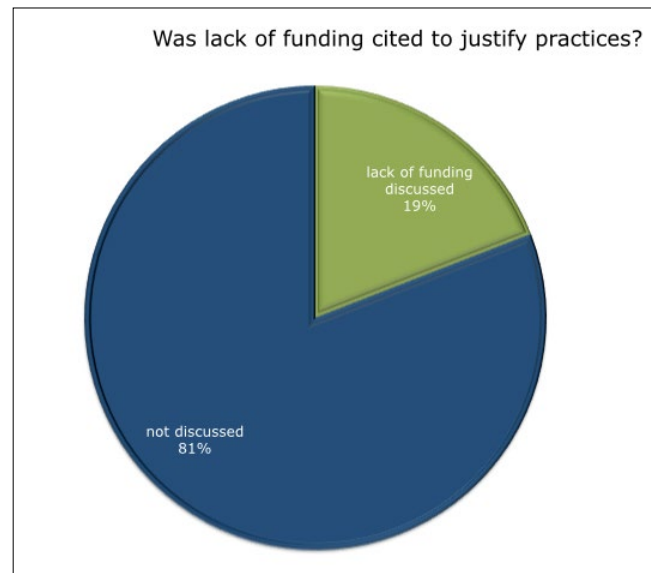


Figure 13: Even without asking, 20 percent of respondents cited lack of funding as a concern when deciding what protocol to follow to identify remains.

Both MtDNA and Nuclear DNA should not be required for samples to be compared in national databases

1. Currently, both MtDNA and nuclear DNA are required for entry into a federally-managed database. However, it is not always possible to obtain both types of DNA, given the decomposition of many recovered UBC remains.
2. The type of analysis needed to identify the highest number of unidentified UBCs is nuclear DNA with the CODIS markers. A compelling argument exists for the purpose of comparison, nuclear DNA is of greater instructive value than mtDNA (see Appendix C where this is discussed).

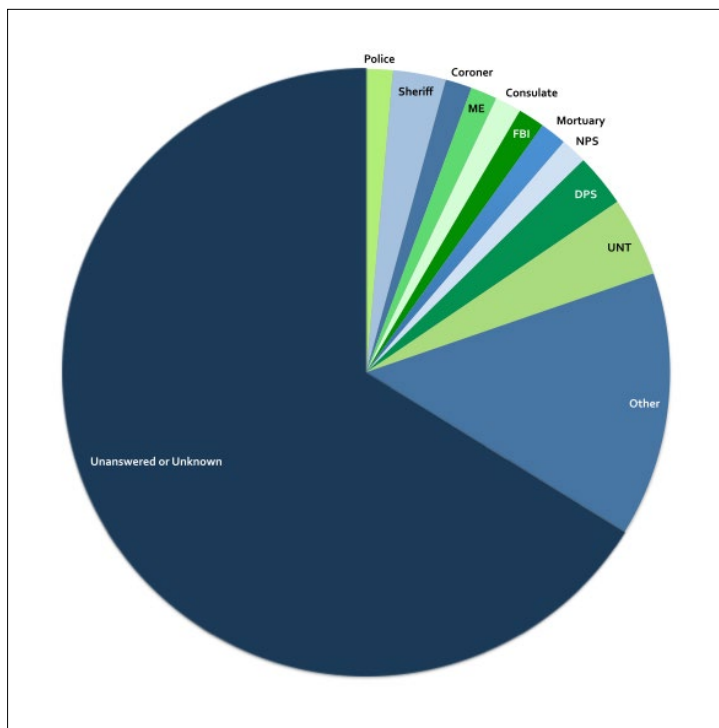


Figure 14: Based on survey responses, 68 percent of respondents did not know the answer or otherwise did not answer what agency most often paid for DNA sampling. Fourteen percent reported that the agency was not among federal or county agencies.

BEST PRACTICES

A DNA sample should be taken for all unidentified remains before burial or cremation

A sample may be tissue, blood, hair, bone or tooth. Multiple samples should be taken in the event that one sample is lost or destroyed.

Method for sampling

Please refer to the following professional manuals for established best practices regarding DNA sampling: National Institute of Justice Guide to Human Forensic Identification; the Interpol Disaster Victim Identification Guide [15]; and the National Center for Forensic Science Final Report on using technology to assist medical examiners and coroners in the identification of human remains [18].

Centralization

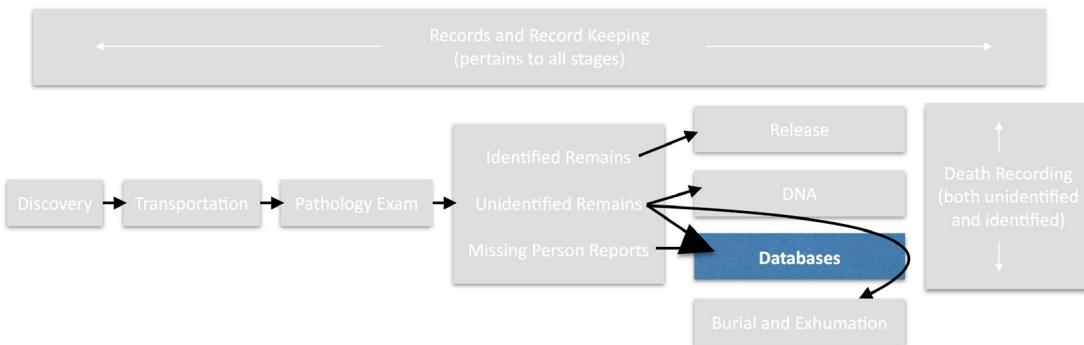
1. For DNA identification and comparisons, a central point should be designated where all stakeholders, county officials, foreign consulates, NGOs, and families can enter and access data on unidentified and missing individuals. Thereupon, as potential matches are identified, respective DNA samples are targeted for analysis.

2. Analysis should be referred to the proper authority as well as the family with whom the sample was compared. In the case of a match, the remains should be released to the family and/or the corresponding consulate.

Informed Consent

To protect privacy rights in the case of family reference samples, in the absence of informed consent, the DNA database cannot include information that would identify the source of the non-consent DNA [42][43].

Section 8: Databases



INTRODUCTION

Databases are the means through which unidentified deceased individuals and missing persons may be connected [34]. DNA databases were originally established to aid law enforcement. Many states now authorize other uses of offender DNA information, including identification of missing persons or unidentified remains and other humanitarian purposes [37].

Thirty-four states in the U.S. explicitly authorize the use of genetic information to create a statistical database, and another four authorize the use of the DNA database for statistical purposes [44]. There are no federal limits on the use of the DNA database information and only eight states explicitly prohibit the use of the database to obtain information on physical traits, predisposition to disease, or medical or genetic disorders [44]. Databases can also be beneficial from a public health perspective, to have a centralized source of compiled information that can be used for statistical purposes, including the counting of UBC deaths.

Among the databases used in connection to unidentified UBCs, NamUs and CODIS are the most referenced. However, there are numerous requirements by these collections, demonstrating that, both in terms of official reports on unidentified UBCs and the inclusion of all missing persons reports, some requirements for acceptance into the database are impossible to fulfill. Often the state of the deterioration of the human remains in question does not reveal information required. These impositions limit the number of possible comparisons for identifications.

Missing persons reports (MPRs)

1. MPRs are not government reports, but are generated by the public to find a person. A missing person may or may not be deceased, but reports filed on their behalf should be cross-checked against files of unidentified remains that are in governmental custody.
2. When an individual goes missing, their families or loved ones may contact the authorities. If there is reason to believe the missing person may be deceased, authorities will collect ante-mortem information, including but not limited to:

- known identifying markers;
 - pathologies that may be seen on or in the body;
 - what the person was last seen wearing;
 - where they were last seen, etc.;
 - dental records;
 - DNA samples;
 - X-rays; and/or
 - photos [4][19].
3. The goal of MPRs is to match this information with a live person, or an unidentified body. To do this, the community must interface with government, where governmental agencies have jurisdiction over human remains.

Unidentified Persons

1. Remains are the responsibility of government agencies.
2. After coroners or medical examiners go through all of the necessary steps for identifying decedents (outlined in the section on Identification), the decedent may remain unidentified. As such, identifying information must be compared against collection/database of missing persons reports, or other data that may produce a match of an unidentified person to his or her identity.

In terms of UBCs, among the key databases utilized is the National Institute of Justice's database, the NamUs. All information about unidentified remains should be entered into this system before unidentified remains are released from the medico-legal jurisdiction for burial or cremation. Following upload into NamUS, personnel should check for possible matches with persons reported missing before release of unidentified remains to the appropriate government official.

Following the centralized system of NamUs, data about unidentified remains should be shared with local foreign consulates so that they may check their rosters of missing persons for possible matches (see DNA section).

ISSUES

Comprehensive databases of citizen biometrics, unidentified decedent information, and missing persons reports are meant to facilitate the process of matching or confirming someone's identity. However, in order for these databases to function, they must be centralized and consistently utilized. In the U.S. today, there are a number of issues that prevent this outcome.

The expanded use of DNA in law enforcement can present problems for groups seeking DNA identifications for purposes other than criminal investigations. In looking for their loved ones - presumably lost in the borderlands - families commonly express concerns or fears that the family DNA will be used to deport a family member. Law enforcement also uses DNA searches to identify the close relatives of the alleged perpetrators of a crime and retains non-crime scene DNA samples indefinitely.

National Issues

Medical Examiners and Coroners offices do not consistently retain records on unidentified

1. Only 49% of ME/coroners offices retain records on unidentified decedents, amounting to over 13,500 people [18].
2. No federal mandate exists requiring MEs, coroners or police departments to submit unidentified decedent data to a national-level database [18].

Unidentified people are not consistently entered into national databases

As an example of existing databases, the National Crime Information Center's Unidentified Person database (NCIC-UP) holds records for only an estimated 15% of nation's unidentified decedents, with similar or smaller percentages in other databases [18].

Decentralization and numerous data sources

There are four FBI databases used to identify bodies, in addition to databases from the National Institute of Justice, state-level databases and a number of non-governmental databases. The number of databases with overlapping purposes could inhibit their utility if authorities are not consistently entering data in all of these [18].

Many unidentified people

In the United States, there are more than 40,000 sets of unidentified human remains [18].

Neither governmental and non-governmental agencies are obligated to submit missing persons reports to a database

1. Both nationally and at the border, multiple agencies may receive missing persons reports, but have no legal obligation to submit these to a database.
2. The result of this is that multiple agencies have reports that are never entered, and therefore, not used.

Border-Specific Issues

UBCs are foreign nationals, and their families may also be foreign and/or undocumented

1. This is an issue when it comes to whether foreign nationals may consistently be entered into U.S. databases.
2. Non-citizen family members are unable or unwilling to enter family reference samples – such as DNA – into a database, through which their sample may be matched with a deceased relative.

Undocumented people often do not want to report to law enforcement, but only law enforcement has the authority to submit data to databases such as NamUs

1. In avoiding sending missing persons reports to law enforcement, various alternative channels have arisen, such that family members find places to submit their reports, resulting in massive decentralization of information.
2. Although some Medical Examiners offices have applied to be recognized as a law enforcement entity in order to enter data into national level databases (such as NamUs), Medical Examiners are not typically classified as law enforcement.
3. Relatedly, is the fear that family reference samples, such as DNA (which may be necessary to identify a body) will be catalogued indefinitely in law enforcement databases, and ultimately be used against family members present in the U.S. without valid authorization.

Decentralization

Currently, a multitude of organizations including MEs and coroners as well as NGOs collect missing persons data. However, they are not always willing, able, or aware of the need to submit it to a database where that data may be cross-referenced against unidentified bodies. Therefore, efforts to match a missing person report to a body are unpredictable.

Minimum prerequisite data on unidentified individuals cannot consistently be met, due to the degraded nature of many UBC remains that have been subject to prolonged exposure

1. Some databases do not allow submission without a minimum number of details. However, because some UBC bodies are found in advanced stages of decomposition, that minimum cannot be met, and therefore the individual's DNA profile cannot be entered.
2. Decomposition may prevent the retrieval of mtDNA. Without this sample, the profile cannot be entered into CODIS.

BEST PRACTICES

There should be a central place where all data is collected

1. There must be a centralized and comprehensive database for all records on undocumented border crosser decedents. This database should include both missing persons reports and unidentified persons.
2. Without the above described database, information for **all** suspected UBCs should be entered in **all** the systems: the Center for Human Identification (UNT), the Combined DNA Index System (CODIS), Doe Network, the Integrated Automated Fingerprint Identification System, NamUs, National Center for Missing Adults, National Center for Missing and Exploited Children, National Crime Information Center, National Dental Image Repository, the National DNA Index System [18].
3. Agencies receiving reports about missing migrants should submit those reports to a centralized national database.

All accredited officials and agencies dealing with postmortem examination or missing persons reports should have access to enter information into national databases

1. Entry into the database should include all agencies that are accredited and consulates. Established human rights groups and pertinent NGOs should have access to databases, as they often receive missing persons reports.
2. **Recommended is a certification or licensing process for non-law enforcement agencies, who consistently receive missing persons reports, to enter data responsibly.**

Foreign nationals, and family reference samples submitted by foreign nationals must be allowed into databases

This is restricted in many databases, even as many foreign nationals die on U.S. soil.

Family reference samples and other elements submitted for the purpose of identifying a missing loved one should not be cross-referenced with criminal databases

1. Although NAMUS may currently be the best database for comparing missing persons reports to family reference samples and pathology reports for unidentified decedents, its association with the National Institute of Justice may prevent family members from submitting reference samples that would otherwise identify a mass population of unidentified decedents. **There should be processes put in place to protect the privacy rights of families in all cases where they participate with DNA samples.**
2. In order that family members may submit samples in good faith, the possibility that this measure may later incriminate them or target them for immigration enforcement should be eliminated.
3. A method of achieving absolute separation of criminal databases and family reference samples would be the establishment of a private and independent database. This is particularly important regarding DNA samples (please refer to the section on DNA for an expanded discussion).

Privacy Rights and Law

The developing use of DNA by law enforcement for criminal investigation sometimes means that innocent persons end up in criminal databases. Therefore, procedures to protect the privacy of those submitting family reference samples should be put in place [45][46][47].

Given the foregoing, protecting the privacy rights of relatives submitting DNA to help locate a missing family member whose DNA is believed to be in a missing person database involves at a minimum:

1. Informed consent by the relative providing DNA, with explicit understanding that the submitted DNA can be used and retained for purposes stipulated by the DNA database to which the DNA is submitted for comparison;
2. Development of new procedures for unique pseudonym submission of relative DNA to permit comparison search on missing person DNA database while protecting the privacy rights of relatives; or
3. Development of procedures to require missing person databases to remove, after search and comparison, the DNA sample and DNA profile of relative DNA submitted for search and comparison.

Given the requirement of informed consent, relatives of missing persons may be reluctant to provide their DNA with full knowledge that it can be used by law enforcement for other law enforcement purposes. In the effort to aid in the identification of human remains of missing persons, efforts must be made to provide procedures such as suggested in (2) or (3).

Any database dealing with UBCs should be Spanish language accessible

Many families of UBCs only speak Spanish, but should be able to log onto these databases to check for their missing loved ones.

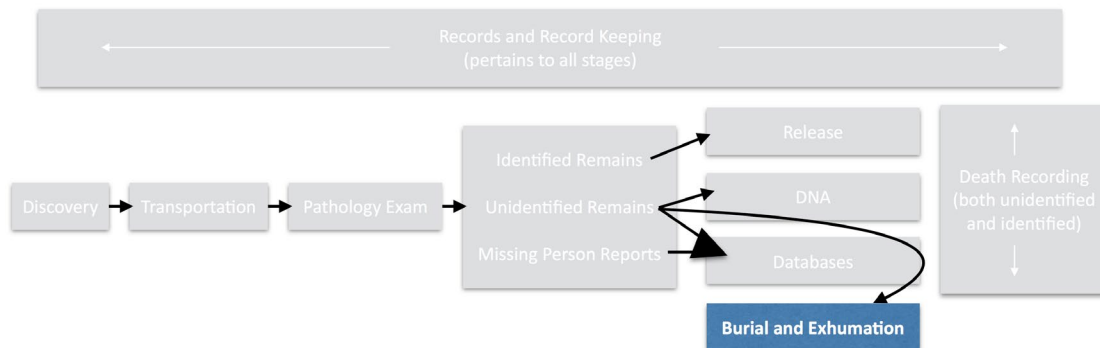
Follow up on reports and/or resubmit to databases periodically

For instance, fingerprints that once had no match, might have a match upon later resubmission.

An independent, non-governmental database dedicated exclusively to missing and deceased UBCs, with procedures to protect the privacy of participants is a best practice

1. The fact that there are thousands of known deceased and missing UBCs in the United States, especially in the border region, may warrant an exclusive database.
2. Due to constraints within existing databases – referenced in most of the best practice subsections – a database dedicated to UBCs will allow a mechanism for best addressing the needs of this very specific context and population.
3. This database should include a field for the GPS position of the recovered body.

Section 9: Burial and Exhumation



INTRODUCTION

The guiding principle of this section is that regardless of any structural or economic circumstances, the bodies of unidentified dead should be preserved for future identification and reunification with family. Unidentified remains should always be left as fully intact as possible after postmortem examinations, and retrievable after subsequent release and burial. In most cases, identified remains will be returned to their families, while unidentified remains will be released to the care of the county in which the body was recovered.

The notion that unidentified remains should be available for families to reclaim is an internationally held principle. It is adhered to even in the course of active war-time conditions, when the dead may not be retrievable for the period of armed conflict [17]. In the case of mere economic constraints, as opposed to conditions of active combat, international requirements for the treatment of the dead during war should be considered a basic guideline for those responsible for releasing unidentified decedents.

The 1949 Geneva Conventions require that

Bodies shall not be cremated except for imperative reasons of hygiene or for motives based on the religion of the deceased. In case of cremation, the circumstances and reasons for cremation shall be stated in detail in the death certificate or on the authenticated list of the dead.

[Parties to the conflict] shall further ensure that the dead are honourably interred, if possible according to the rites of the religion to which they belonged, that their graves are respected, grouped if possible according to the nationality of the deceased, properly maintained and marked so that they may always be found. For this purpose, [parties to the conflict] shall organize at the commencement of hostilities an Official Graves Registration Service, to allow subsequent exhumations and to ensure the identification of bodies, whatever the site of the graves, and the possible transportation to the home country. These provisions shall likewise apply to the ashes, which shall be kept by the Graves Registration Service until proper disposal thereof in accordance with the wishes of the home country.

As soon as circumstances permit, and at latest at the end of hostilities, these Services shall exchange, through the Information Bureau mentioned in the second paragraph of Article 16, lists showing the exact location and markings of the graves, together with particulars of the dead interred therein [48].

ISSUES

Remains have been buried without proper samples and documentations, by which they could be exhumed

1. Bodies have been found in communal graves, without clear body tags or reference number related to the postmortem investigations [49][38][39].
2. Bodies have been buried without postmortem investigation other than external exam.
3. Appropriate samples have not been taken before burial (see sections on Pathology and Identified, Unidentified and Missing).
4. When an identification has occurred, the county was not able to locate a grave to exhume and repatriate the body.

Lack of clear national guidelines for unidentified remains [21]

National guidelines concerning procedures that must be followed when a decedent cannot be identified are very loose or nonexistent. It is not required that identifying samples be taken or that information on the decedent be uploaded to a database for future crosscheck with missing persons. There are no federal regulations for how the body should be disposed of after release.

Counties not able to pay for burial

Bodies have been cremated, and ashes have been scattered at sea in counties that have not been able to pay for burial or storage. With this method, gravesites are nonexistent and unrecorded, which is problematic for the prospect of future repatriation of remains.

BEST PRACTICES

For Burial

Unidentified bodies should only be buried after appropriate postmortem investigation and samples taken [21]

Because a body will continue to decompose after recovery, and especially after burial, samples must be taken while a body is in a lesser stage of decay as they may not be available later. Essentially, after burying a body, investigators may lose the chance to gather pertinent data that could lead to identification.

Registration of Graves [21]

1. Graves should be permanently marked.
2. Cemeteries should be plotted, and mapped, so that all decedents can be located according to name or unique identifying number.
3. This information should be consulted in order to locate a body for exhumation.

Identifying marker buried with remains

1. Tags will ideally contain a GPS beacon attached so that the bodies can always be located after burial.
2. A non-degradable body tag listing a unique reference number associated with the body's postmortem records should be used [19].
3. This number should allow officials to locate all recorded antemortem and postmortem data on the individual [17][19].

For Exhumation

1. Exhumations must be conducted by specialists.
2. Leading up to exhumation [17]
 - Remains should be mapped and photographed *in situ* after a body is uncovered, but before it is fully exhumed. This allows for the state of the body to be recorded before it is removed from its grave.
 - The body's unique reference number (a body tag should be included on the remains) should be recorded, or if none exists, assign one. This should include a number, as well as the location and date of exhumation.
3. Photograph the site after the body is exhumed [17].
4. If multiple exhumations are occurring at once, or the site has an unknown number of graves, it must be secured [17].

Family needs and unresolved grief

For families of the missing, grief may be unresolved for long periods of time, when they do not know what has happened to their loved one. With this in mind, nothing should be done to make this process more difficult for a grieving family [17][34].

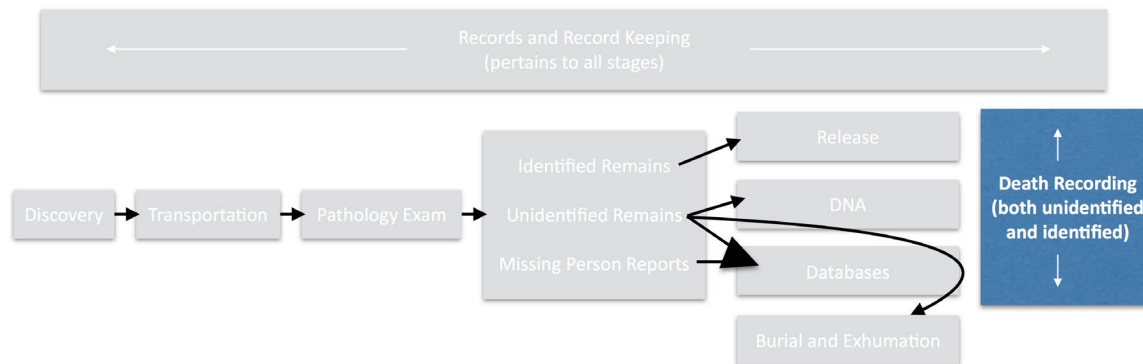
Cremation should only be performed when it is absolutely necessary

1. As cremation destroys a body and is rejected on religious grounds by many individuals, it should be avoided.
2. Cremation prevents future identification measures to be performed on an unidentified corpse, and also prevents a recognizable body from being returned to its family.

Dignity of the dead

Related to the concerns expressed above, methods of burial or exhumation should be performed in a respectful manner, in acknowledgement that a decedent cannot give consent, but that does not negate the religious beliefs or end-of-life wishes of a dead person. Those conducting burial or exhumation should also be respectful that remains may be the only link a family has to their deceased loved one. Mishandling remains may make a difficult emotional and political situation worse [17].

Section 10: Death Recording



INTRODUCTION

Because of the large number of UBC deaths occurring along the border, there must be mechanisms to count them, which we propose should be combined with the death recording process.

ISSUES

Antemortem data is not always attainable for UBC decedents

1. Under normal conditions, the medical examiner or coroner must obtain the information from an informant (usually a family member or a friend) who has knowledge of the facts. But in the case of unattended deaths of presumed UBCs, the officer may not have access to the informant, resulting in certificates that lack sufficient information for assigning codes for statistical purposes [12].
2. Certain items (such as ethnicity, and time of death) may be unknown and the medical examiner or coroner by officers.

Variation in death records among states, many of which are dramatically abridged from U.S. Standard Certificate of Death (USSCD)

Although standard federal death certificates contains a section on death sequencing that would compel the official submitting it to enter sufficient information to allow a researcher to identify the decedent as a UBC, state forms may not require the same standards of reporting.

Multiple surnames are common in Latin America, but cannot be accommodated in many death certificates

A report from the Center for Disease Control notes that USSCD has problems dealing with multiple surnames, which are common in Latin American countries [12].

BEST PRACTICES

An accepted goal of systematic collection of information via a U.S. standard certificate of death is to provide accurate and permanent record of the fact of death and circumstances of death and the cause of death. It also records personal information about the decedent, necessary for the development of public health research and research agendas [12]. This information is collected by the Center for Disease Control to monitor the nation's public health needs. In this sense, the USSCD provides a possibility for systematically recording UBC deaths.

Primary Recommendation: Add UBC checkbox on USSCD

The best way to facilitate the collection of statistics on UBC decedents would be to add a box on the federal and state standard death certificate to indicate a UBC.

Secondary Recommendation: Implement regulations for universal use of USSCD

If adding a UBC checkbox does not occur, a secondary and alternative recommendation is to ensure that the U.S. standard form is used throughout the country. Short of modifying the U.S. standard certificate of death, the form as it stands may also allow documentation of conditions leading to the death, which could indirectly help investigators compile evidence to identify the decedent as a UBC (see box 32, highlighted in Figure 15). Registration of related multiple conditions on the death certificate or report would provide greater accuracy for enumerating the number of UBC deaths, and statistical data on causes of death.

The USSCD provides a way for listing a chronology of disease or injury leading to death for more precise recording of death of presumed UBCs that are important for the more accurate accounting of the number of deaths that are related to unauthorized border crossing. A listing of these conditions aid in the investigation of the **relationship between conditions**. Although the single cause of death is not incorrect from a clinical standpoint, it may not include sufficient information for assigning codes for statistical purposes that would distinguish UBC deaths from others.

1. Medico-legal officials should refer to the guidelines provided by the World Health Organization that address the importance of registering the entire sequence of conditions leading to death as well as other conditions contributing significantly to death [12].
2. Medico-legal officers should consult *Medical Examiners' and Coroners' Handbook on Death Registration and Fetal Death Reporting* [12] for guidelines for entering the sequence of events (see box 32 of the *U.S. Standard Certificate of Death*, Figure 17), adding lines if necessary, as recommended by this handbook.
3. When medical officer cannot determine the etiology of a process such as dehydration, hyperthermia or hypothermia (some of the most common of conditions that UBCs face), additional information should be reported on the death certificate [50], and if possible, provide a sequence to help explain the certification chosen. For example, if someone dies of hypothermia and dies in a desolate place, then researchers may be able to identify the death as a UBC death.

U.S. STANDARD CERTIFICATE OF DEATH									
LOCAL FILE NO.					STATE FILE NO.				
1. DECEDENT'S LEGAL NAME (Include AKA's if any) (First, Middle, Last) John Leonard Palmer					2. SEX Male		3. SOCIAL SECURITY NUMBER 123-45-6789		
4a. AGE-Last Birthday (Years) 92		4b. UNDER 1 YEAR Months Days		4c. UNDER 1 DAY Hours Minutes		5. DATE OF BIRTH (Mo/Day/Yr) April 23, 1911		6. BIRTHPLACE (City and State or Foreign Country) San Francisco, CA	
7a. RESIDENCE-STATE Maryland		7b. COUNTY Frederick			7c. CITY OR TOWN Thurmont				
7d. STREET AND NUMBER 245 Lone View Road					7e. APT. NO.		7f. ZIP CODE 20212-1234		7g. INSIDE CITY LIMITS? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
8. EVER IN U.S. ARMED FORCES? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		9. MARITAL STATUS AT TIME OF DEATH <input checked="" type="checkbox"/> Married <input type="checkbox"/> Married, but separated <input type="checkbox"/> Widowed <input type="checkbox"/> Divorced <input type="checkbox"/> Never Married <input type="checkbox"/> Unknown			10. SURVIVING SPOUSE'S NAME (If wife, give name prior to first marriage) Sheila Marie Sonner				
11. FATHER'S NAME (First, Middle, Last) Stanley Leonard Palmer					12. MOTHER'S NAME PRIOR TO FIRST MARRIAGE (First, Middle, Last) Lorraine Ellen Russell				
13a. INFORMANT'S NAME Sheila Marie Palmer			13b. RELATIONSHIP TO DECEDENT Wife		13c. MAILING ADDRESS (Street and Number, City, State, Zip Code) 245 Lone View Road, Thurmont, MD 20212-1234				
14. PLACE OF DEATH (Check only one: see instructions)									
IF DEATH OCCURRED IN A HOSPITAL: <input checked="" type="checkbox"/> Inpatient <input type="checkbox"/> Emergency Room/Outpatient <input type="checkbox"/> Dead on Arrival					IF DEATH OCCURRED SOMEWHERE OTHER THAN A HOSPITAL: <input type="checkbox"/> Hospice facility <input type="checkbox"/> Nursing home/Long term care facility <input type="checkbox"/> Decedent's home <input type="checkbox"/> Other (Specify):				
15. FACILITY NAME (If not institution, give street & number) Mountain Memorial Hospital					16. CITY OR TOWN, STATE, AND ZIP CODE Frederick			17. COUNTY OF DEATH Frederick	
32. PART I. Enter the chain of events—diseases, injuries, or complications—that directly caused the death. DO NOT enter terminal events such as cardiac arrest, or ventricular fibrillation without showing etiology. DO NOT ABBREVIATE. Enter only one cause on a line. Add additional lines if necessary.									
IMMEDIATE CAUSE (Final disease or condition resulting in death) → a. Pulmonary embolism Due to (as a consequence of):									
b. Congestive heart failure Due to (as a consequence of):									
c. Acute myocardial infarction Due to (as a consequence of):									
d. Chronic ischemic heart disease Due to (as a consequence of):									
Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST									
a. Pulmonary embolism Due to (or as a consequence of):									
b. Congestive heart failure Due to (or as a consequence of):									
c. Acute myocardial infarction Due to (or as a consequence of):									
d. Chronic ischemic heart disease									
PART II. Enter other significant conditions contributing to death but not resulting in the underlying cause given in PART I. Diabetes mellitus, Hypertension									
35. DID TOBACCO USE CONTRIBUTE TO DEATH? <input type="checkbox"/> Yes <input type="checkbox"/> Probably <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown					36. IF FEMALE: <input type="checkbox"/> Not pregnant within past year <input type="checkbox"/> Pregnant at time of death <input type="checkbox"/> Not pregnant, but pregnant within 42 days of death <input type="checkbox"/> Not pregnant, but pregnant 43 days to 1 year before death <input type="checkbox"/> Unknown if pregnant within the past year			37. MANNER OF DEATH <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Homicide <input type="checkbox"/> Accident <input type="checkbox"/> Pending investigation <input type="checkbox"/> Suicide <input type="checkbox"/> Could not be determined	
38. DATE OF INJURY (Mo/Day/Yr) (Spell Month)		39. TIME OF INJURY		40. PLACE OF INJURY (e.g., Decedent's home, construction site, restaurant, wooded area)			41. INJURY AT WORK? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
42. LOCATION OF INJURY: State: City or Town: Apartment No.: Zip Code:					43. DESCRIBE HOW INJURY OCCURRED:				
44. IF TRANSPORTATION INJURY, SPECIFY: <input type="checkbox"/> Driver/Operator <input type="checkbox"/> Passenger <input type="checkbox"/> Pedestrian <input type="checkbox"/> Other (Specify):					45. CERTIFIER (Check only one): <input checked="" type="checkbox"/> Certifying physician To the best of my knowledge, death occurred due to the cause(s) and manner stated. <input type="checkbox"/> Prosecuting & Certifying physician To the best of my knowledge, death occurred at the time, date, and place, and due to the cause(s) and manner stated. <input type="checkbox"/> Medical Examiner/Coroner On the basis of examination, and/or investigation, in my opinion, death occurred at the time, date, and place, and due to the cause(s) and manner stated.				
Signature of certifier: Edward M. Stone, M.D.									
46. NAME, ADDRESS, AND ZIP CODE OF PERSON COMPLETING CAUSE OF DEATH (Item 32) Edward Matthew Stone, M.D., 23 Porter Drive, Frederick, Maryland 29885-6789									

Figure 15: Appendix A, page 107 of the *Medical Examiners' and Coroners' Handbook on Death Registration and Fetal Death Reporting* shows a U.S. Standard Certificate of Death. A rectangle surrounds box 32, which facilitates the recording of a sequence of events leading to a death. The full completion of this section would allow for researchers to identify potential UBCs, even if they were not directly recorded as such.

SUPPLEMENTAL AUTOPSY PROTOCOL FOR UNKNOWN PERSONS

ML # _____ Dr. _____ Date _____

Name association: _____

Source of name association: _____

UBC: Y N Likely

Viewable face: Y N Partially

Fingerprints obtained: Y N Pending

Hands removed: Y N

Body Condition Stage: 1 2 3 4 5 6 7 8

Estimated PMI: _____

FEATURES OF IDENTIFICATION

Sex: M F ? Estimated Age: _____ Complexion: _____

Height: _____ inches Weight: _____ pounds Teeth: _____

Head Hair: Color _____ Length _____ Facial Hair: Mustache Goatee Beard

Scars/Marks/Piercings (size, shape, location): _____

Tattoos (description, location): _____

Other unique features: _____

Figure 16: Supplementary autopsy form from the Pima County Office of the Medical Examiner. The box encircles the UBC notation which could be used to count UBC deaths, if used throughout the border region.

Tertiary Recommendation: Companion death certificate form to note decedents' UBC status

Recognizing that implementation of complete national use of a USSCD will also be difficult to attain, this manual has a third alternative recommendation to record UBC deaths. This final alternative can be simply and practically implemented immediately. We recommend that there is a secondary death notation form submitted with the standard death certificate, noting whether a decedent is a UBC.

Figure 16 is a sample companion document that should be used by forensic personnel conducting postmortem investigations, which will facilitate the counting of UBCs. This should be utilized for all suspected UBC deaths. To accomplish this, a criteria for recognizing a UBC must necessarily be standardized across all jurisdictions (see Criteria for Identification of UBCs box in Introduction).

The following information should be adapted to any form used to record UBC deaths, whether it involves the primary, secondary, or tertiary recommendation:

Including more than one surname would provide for greater accuracy

1. The *Medical Examiners' and Coroners' Handbook on Death Registration and Fetal Death Reporting* [12] provides guidance for registering the name of decedents if there are more than two first names or middle names. The recommendation is that the officer should make a determination and include the two names in the same field with a space in-between the two names. No mention is made of those individuals with more than one surname, as is customary in those populations that make up the majority of undocumented border crossers. However, two surnames should be included following this recommendation for accommodating more than one name of the same type.
2. Medico-legal officials should refer to the guidelines for entering more than one name in a field to register the death of a decedent to include more than one surname.

Using GPS coordinates would provide greater accuracy for recording place of death under circumstances where the location of death is poorly defined

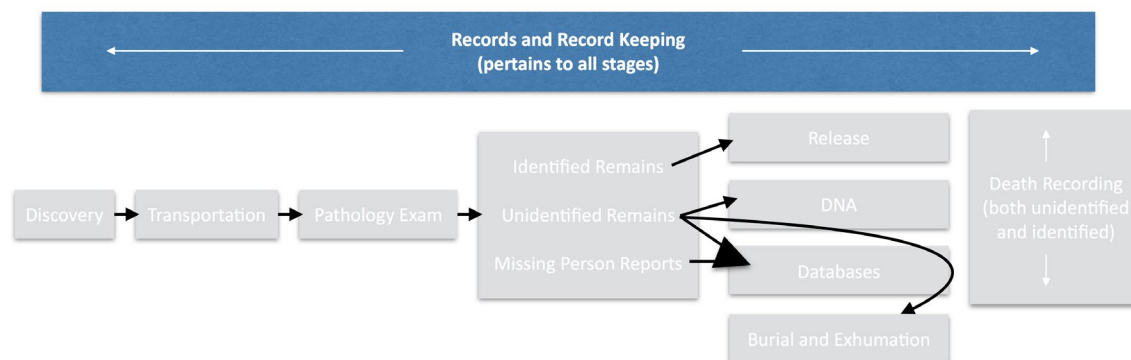
1. Section 14 of the USSCD provides a place for medico-legal officers to record where the death occurred and where the place of death is well defined. However, in the case of unattended deaths of presumed UBCs and where the discovery of the deceased may be poorly defined - e.g., listed as "remote desert" - as much information should be included as possible.
2. A best practice would be to provide GPS coordinates in the space provided.

The date and place of burial (if applicable), with information to identify the gravesite, should be provided [17]

Whatever procedures for the death recording of UBC decedents should also be used for abandoned infant/apparent newborn and fetuses

1. Some literature points to the phenomenon of spontaneous delivery by pregnant UBC women en route to the United States. If the infant is considered to have lived, even for a very short time following delivery, then the medical examiner or coroner should use the death certificate, but must also ensure that the birth of this infant is properly registered.
2. If the infant is considered to be a fetal death or stillborn, then the appropriate fetal death report must be completed, including the sequence of death information that may allow researchers to associate the death with a UBC.

Section 11: Records and Record Keeping



INTRODUCTION

In the border region, medico-legal officers must contend with issues specific to migration. In desert climates such as Arizona's, such officers commonly deal with the discovery of skeletal remains. Death investigation in this area is much different than death investigation in other places, because it cannot proceed based on eyewitness accounts, or even accounts of those who knew the decedent. Moreover, migrants are not from the area and do not necessarily travel with people they know. Given these circumstances, the process of systematic record-keeping and data dissemination between agencies plays a much more substantive role in the task of identifying unknown remains than in normal circumstances.

ISSUES

Decentralization

1. Decentralization of record-keeping prevents building of evidence in the short and long terms, for criminal investigations, counting those who die, or establishing trends to dictate public policy.
2. A lack of systematic record keeping also prevents establishing accountability for ensuring decedents are adequately examined before release.

Family members cannot be relied upon to coordinate details

Although family members are typically able to provide other details which, when cross-checked against other information may help to ascertain identity, these individuals may be difficult, if not impossible to locate. Thus, data gathering and record-keeping processes by investigation officials plays a bigger role in the investigation of UBC deaths than in normal circumstances.

Archiving and cross-referencing records is not consistently occurring. Record-keeping is not being systematically coordinated between agencies with access to such records

This prevents records from being accessible as individual or groups conduct their investigation [51].

A lack of a clear chain of custody causes misplacement of information and does not ensure the availability of evidence [13]

There are various governmental offices included in the chain of custody of remains and each is responsible for generating specific reports (see Figure 17). For example, the sheriff is responsible for generating reports on the scene, a medical examiner is responsible for pathology reports. If a coroner or Justice of the Peace is involved, inquest forms may be housed in a separate office than the pathology reports. When contracted private entities are also involved, such as funeral homes or private cemeteries, records are not often maintained at a level needed for identification purposes.

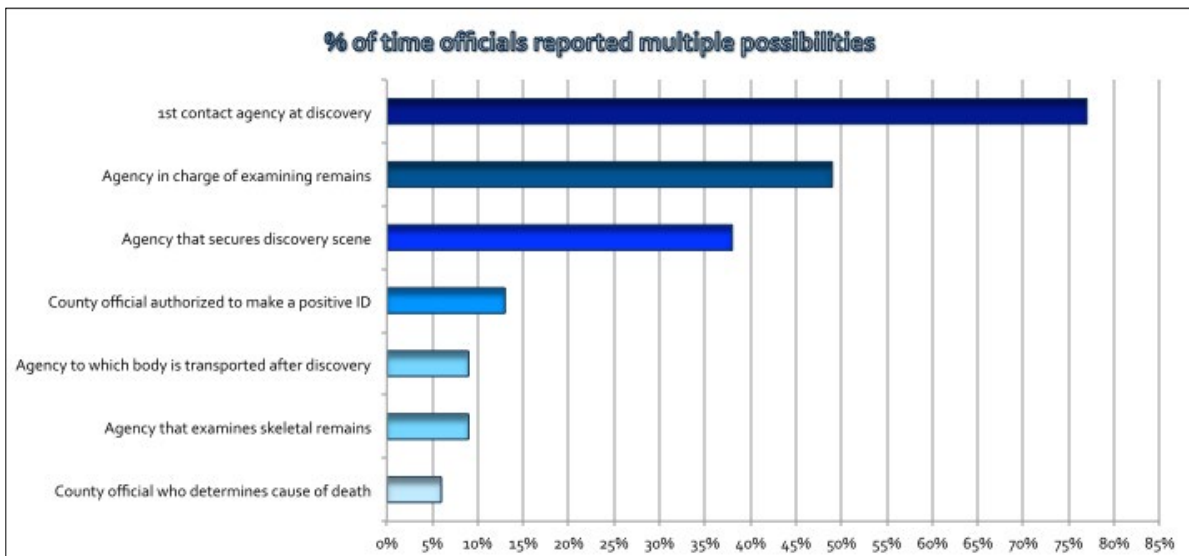


Figure 17: This graph demonstrates the stages of death investigation during which multiple agencies may be involved.

BEST PRACTICES

Record-keeping practices should ensure that UBC deaths are recorded as “UBCs”

1. The definition of UBCs must be standardized across the border. See the Criteria for Counting UBCs box in the Introduction.
2. Consistent recording of UBC deaths across the border improves the counting of this population.

Valuable information can be obtained from the material evidence and personal effects that are associated with human remains

Under the conditions along the border, a best practices approach to the collection and recording of data comes by way of autopsy reports that follow standards identified in a 2006 study, consisting of an expansion of the criteria used for classifying UBC recovered bodies, and thus, a more accurate accounting of border-crosser deaths along the border [6]. Medico-legal officers should thus use direct and significant circumstantial evidence, a preponderance of which can be used to identify UBCs including the following:

1. The decedent lacks a US Social Security number, permanent US residency card, or evidence of lawful US immigration status;
2. The decedent was of Hispanic ethnicity;
3. The decedent is foreign born, of a foreign nationality, foreign residency, foreign next-of-kin, died while in transit from Mexico to a US destination;
4. The body is discovered in a well-known migrant corridor, or found with or reported by other UBCs; and/or
5. Personal effects or documents associated with the deceased are typical of UBCs (e.g., water jugs, US & foreign currency, hygiene products, extra clothing, phone cards, phone numbers or addresses of contacts in a foreign country, and a backpack).

A national system for management and coordination of information should model systems established for the centralization of missing persons and the dead and missing in disasters

1. The Scientific Working Group for Forensic Anthropology [26] recommends that Forensic anthropologists with appropriate authority should contribute the results of their analyses of unidentified individuals to national databases of missing and unidentified persons (e.g. NamUs, NCIC).
2. Centralization and consolidation of information about the dead and missing is essential for increasing the possibility of finding a match between tracing requests for missing persons and available/known information of dead bodies. The tracing services of the American Red Cross and the International Committee of the Red Cross and Red Crescent Societies may assist in this task [13].
3. There should be a balance in the collection and maintenance of data gathered to identify unknown persons, with the privacy rights of all those concerned taken under consideration.

Death investigators may use a localized database to create standards of record-keeping and facilitate information sharing between agencies

Many data collection software programs are available on the Internet, or may be designed by the Medico-legal office (e.g., VertiQ used at PCOME)

A companion document for death certificates should include a checkbox indicating whether the decedent is a suspected UBC

1. A document such as the one illustrated by Figure 16 will allow for a systematic counting of UBC deaths.
2. It is a best practice that the data on these forms be centralized through a federal government agency or a reputable national NGO.

Roles of the family

1. Families should be involved in the process of locating missing persons by providing relevant documents (e.g., medical history) and data.
2. Families should be able to contribute data without fear of their information going into a criminal database, or of incriminating themselves if they are undocumented.
3. All pertinent death investigation and death records should be made available to the families of decedents.

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Appendix A: Methods

This manual emerges from a series of questions from a community that has been affected by the rising toll of UBC deaths. It is a response to the very particular context of the thousands of UBCs who have died since the mid-1990s, which also represents a disaster-like situation for local officials and smaller jurisdictions constituting the majority of this region. This is disaster-like due to the fact that local authorities have not been accustomed or equipped (in terms of infrastructure, finances or training) to deal with this dramatic rise in unknown and decayed human remains in their jurisdictions [52]. Pima County in Arizona has been one of the few jurisdictions to begin to count the UBC dead and unidentified, and alone, they have tallied over 2,000 individuals since the year 2000 [4][9]. The circumstances surrounding UBC deaths are complicated by the fact that many UBCs travel anonymously or under pseudonyms, cannot be identified by common death investigation techniques such as questioning friends and family – often because these people are foreign and/or unknown – or by standard post-mortem treatment accorded to most deaths. This is because UBC remains are often found highly decayed from prolonged exposure to the elements in the remote wilderness settings through which migrants travel.

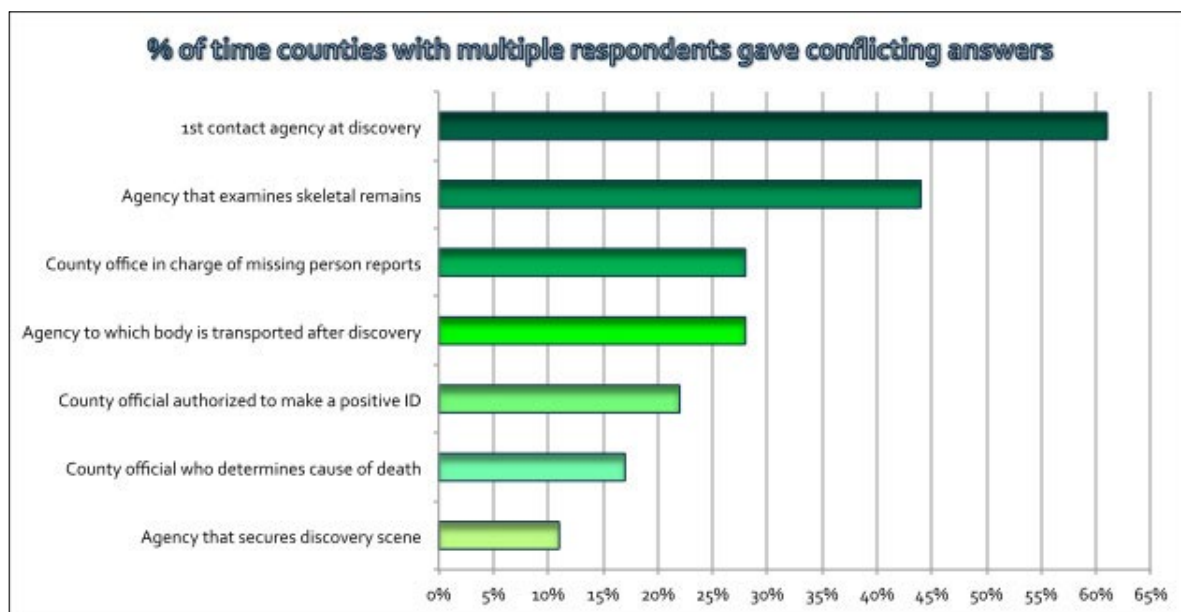


Figure 18: Of the 18 counties in which multiple interviews were conducted, officials occasionally gave conflicting reports of the protocols involved in given stages of a body's itinerary. This chart represents a selection of scenarios for which this conflicted reporting occurred. Values represent percent of 18 counties for which this was the case.

In these circumstances, a sustained process of random and disorganized response techniques based on locally available (insufficient) money, infrastructure and training has meant that for more than a decade, UBCs have been systematically subject to incomplete or uneven investigation, leaving no comprehensive statement about the number of UBC dead nor the number left unidentified. As evident in Figure 18, of the 18 counties at which multiple interviews were conducted, many county officials gave conflicting answers regarding basic aspects of which county offices were involved in given aspects of a body's itinerary, from discovery to release. Officials involved in death investigations are cognizant of the lack of standardization and oversight. Therefore, our team focused on collecting the local knowledge of procedures and protocols from each county jurisdiction.

OBJECTIVES

The study aimed to determine what the methods of death investigation were in each of the jurisdictions responsible for UBC remains. Second, was to determine the conditions in which these practices were occurring, and the barriers to best practice.

Data Collection

The research was divided into four stages: survey research; semi-structured interviews with officials involved in the postmortem process to determine what was being done; and group meetings with experts and practitioners involved in UBC death investigation to determine optimal practices. Finally, legal and medicolegal research helped identify optimal practices and to examine these in light of existing laws.

Survey Research

Primary data was generated by way of an open-ended survey instrument and semi-structured interviews of medical examiners, coroners and other pertinent officials. Figure 19 proportionally represents the types of officials represented within the survey. The survey instrument was developed in consultation with Pima County Chief Medical Examiner, Bruce Parks, MD, and considered conventions and standards used in the counting and processing of UBCs, the criteria used to establish if someone is a UBC, rationales for counting and not counting UBCs, procedures for identifying persons presumed to be UBCs, and procedures for the processing of unidentified bodies of probable UBCs. The survey instrument was mailed to medical examiners, coroners, and other pertinent officials responsible for the counting, examination, and identification of the bodies of UBCs in United States counties bordering Mexico.

For this project, we limited our study area to the area within 100 miles of the U.S.-Mexico border, although counties above that area were incorporated if they were directly involved in the death investigation process for counties to the south. For example, in New Mexico, the Medical Examiner's office is state-based, such that UBC bodies recovered within 100 miles of the U.S.-Mexico border are examined in the Medical Examiner's Albuquerque facilities, over 270 miles north of the border. This study area was over 200,000 square miles (see Figure 20).

The University of Arizona Institutional Review Board for the Protection of Human Subjects reviewed and approved the plans for research.

The majority of the interviews were administered in person, although some officials submitted survey answers via mail or telephone. Each county within the study area received a request to complete our survey via certified mail and multiple phone calls, regardless of whether they responded. The interviews involved a series of closed and open-ended questions tested in a pilot project in 2007. Ultimately, 69 completed surveys were collected from 35 counties and four states, with an average of 2.25 interviews per county. Each survey interview took approximately one hour to complete.

Analysis of the Data

At the end of data gathering, each interview was subject to qualitative content analysis and quantitative evaluation. Statistical analysis was undertaken to pinpoint general trends and particular practices.

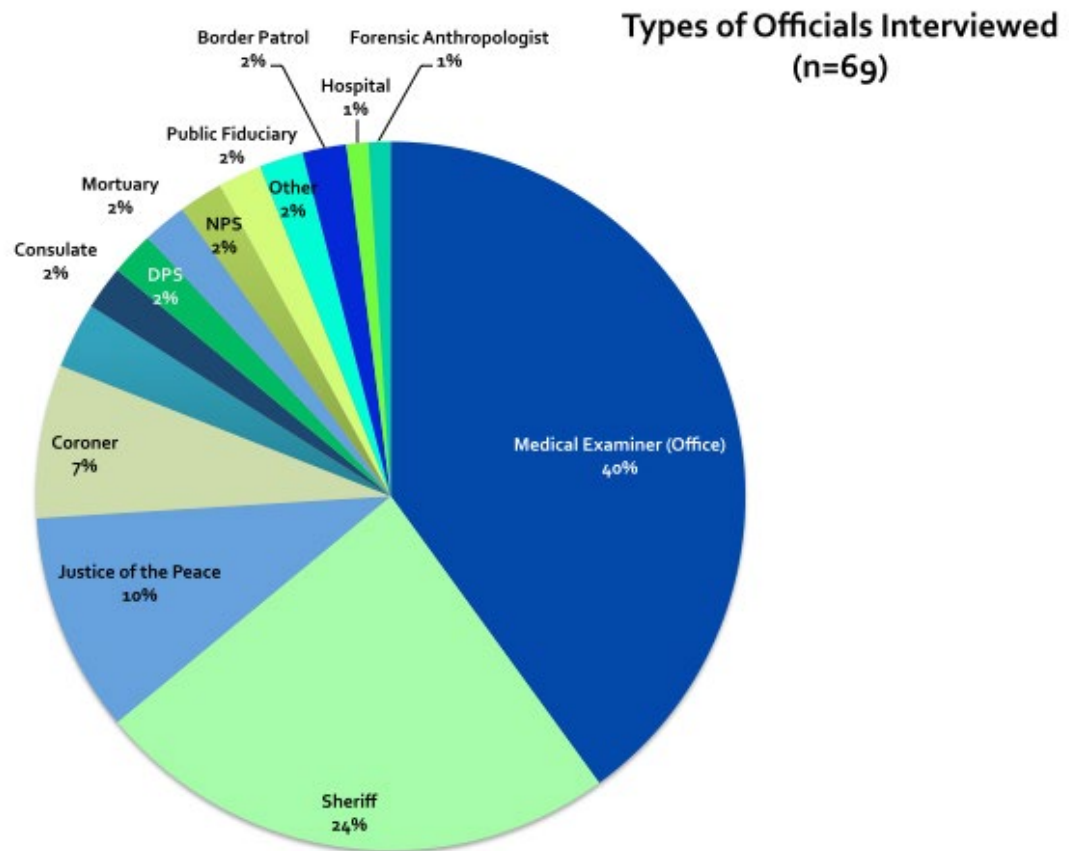


Figure 19: Pie chart represents proportions of each official type represented among the 69 interviews conducted.

Consultant Meetings: Participatory Research

After interviews were collected, a first draft of a best practice manual was created and sent to consultants and survey respondents from across the border, which included a range of possible practices developed in response to border-based needs. Additionally, community-based organizations such as Houston Unidos, Coalición de Derechos Humanos and the Argentine Forensic Anthropology Team were sent drafts. These organizations were represented as they are nationally recognized for their work with county and state medical examiners, coroners, law enforcement agencies (including sheriffs, police, and Border Patrol), and thus represented important community-based viewpoints regarding best practices surrounding migrant deaths.

A meeting in Scottsdale, Arizona, was organized to discuss their notes on the draft and related concerns. Eighteen participants representing Arizona, California and Texas attended, as well as the Binational Migration Institute project team.

The meeting produced many key insights for a final manual draft, resulting in the addition and expansion of several chapters, suggestions for points of emphasis, notes for the future distribution of the final manual, and the idea that the manual should be used as a training tool for agency officials along the U.S.-Mexico border region.

Student Research Training

The BMI's far-reaching, multidisciplinary scholarship offered students opportunities to gain invaluable experience in conducting applied social science research. Most of the fieldwork done with numerous government agencies for the 2006 study on the "funnel effect" [6] mentioned earlier, was completed by students associated with the BMI. For the current project, both graduate and undergraduate engaged in the project design and implementation. The graduate research assistants (GRAs) were able to hone their skills in database computer software (entry and management), engaged with senior personnel (Co-PIs) by attending project related planning meetings, assisted in the organization and publication of the manual, and in writing papers or briefs that emerge from these events (for presentation at professional meetings or part of their masters or doctoral programs). GRAs were trained in ethical practice as outlined by the University of Arizona Institutional Review Board Human Subjects Protection program, after which they engaged in the fieldwork portion of the project.

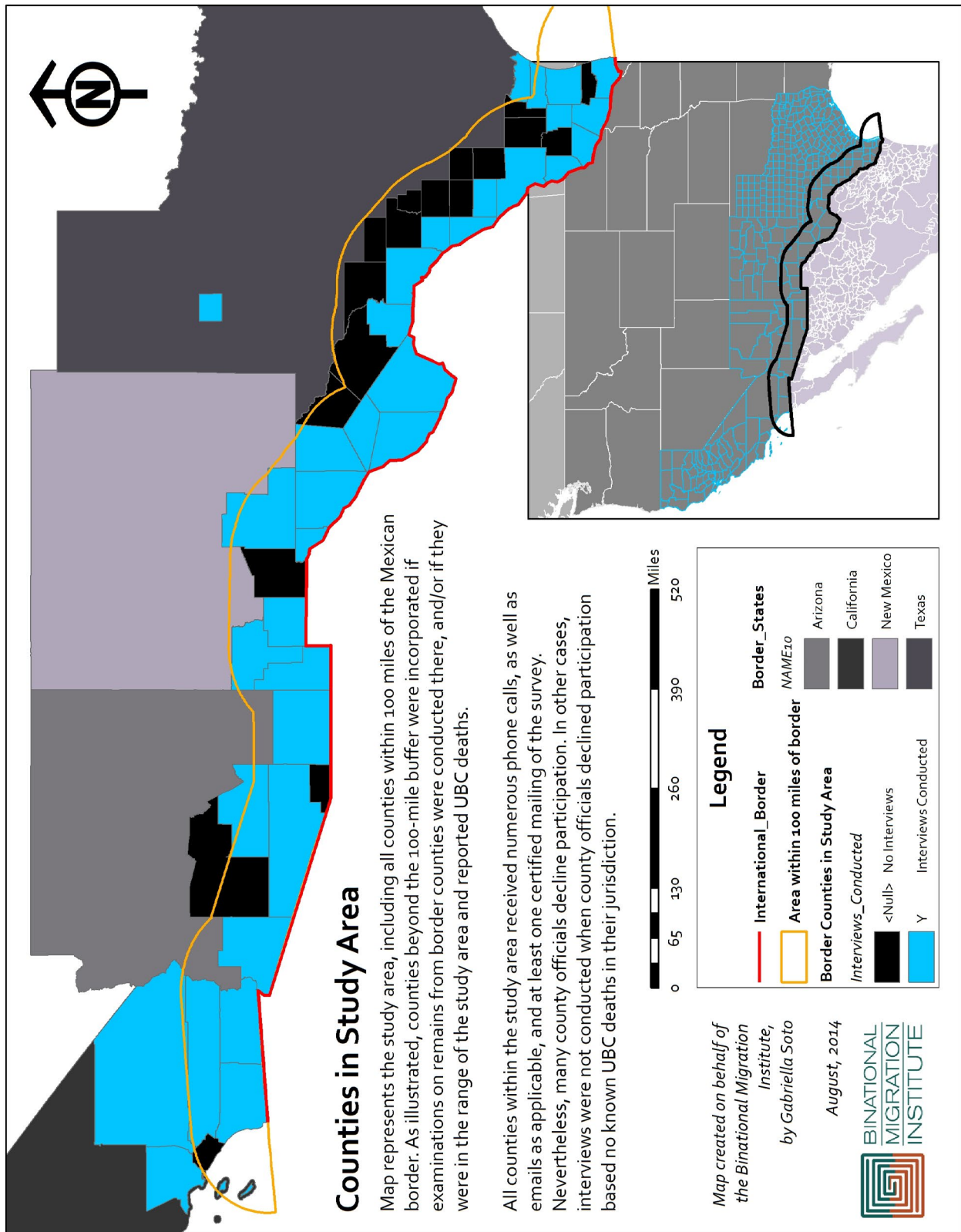


Figure 20: The study area of 100 miles north of the border is buffered in orange, while counties within this buffer are colored blue where interviews were conducted, and black where no interviews were conducted.

Appendix B: Social Vulnerability Index

INTRODUCTION

A recently used metric at the state and national level for disaster preparedness is called a social vulnerability index (SVI). The SVI is a compound statistic that quantifies social vulnerability. This statistic can be used in focusing efforts for disaster preparedness and to triage disaster response and recovery efforts. It acknowledges that a community's response to and recovery from an unforeseen and tragic event, which causes inordinate resource expenditure, depends on factors that transcend the breadth of tornado, hurricane or other disaster scenario [53][54][55][56]. Specifically, socioeconomic factors will also play a role in determining a community's resilience in the face of disaster. However, the statistic's shortcoming is that it offers no indication as to underlying reasons that social vulnerabilities may exist, but merely compiles them.

The incorporation of socioeconomic factors largely entered the language of disaster preparedness after Hurricane Katrina, which inordinately affected minorities and the poor [53][54][56]. To illustrate how socioeconomic factors may translate into populations' vulnerability to disaster in real-world scenario, Katrina is also an important case study. For example, although buses were provided to aid in the evacuation of New Orleans preceding Hurricane Katrina, the number of buses was inadequate. One in five people in the affected areas did not have access to a car, which was unanticipated. Forty-four percent of Katrina's casualties were African-Americans and one-fifth of the overall casualties were people who lived below the poverty line [53]. Nearly a quarter-million people of Hispanic descent lived in states affected by Katrina, many of whom were undocumented. There were multiple reports of undocumented individuals being denied assistance, and in some cases, evicted from emergency shelters [53]. However, reliable statistics do not exist for these populations, due to their undocumented status. Figure 21 details how the minority make-up and poverty levels in a community contribute to vulnerability in general and as pertains to undocumented migrant deaths at the U.S.-Mexico border.

Disasters expose the elements of society that face the most barriers to an adequate response. Reflection on which parts of society that are in need of services allows future resources to be effectively allocated. Notably, vulnerability statistics are not meant to assign a victim group, and do not indicate a group's lack of resilience. Some vulnerable groups may be particularly resilient. They do not represent an individual's ability to respond appropriately in an emergency, and similarly, an individual's ethnicity, income and education are not stand alone indicators of his or her worth or personhood. Rather, social vulnerability statistics involve the compilation of characteristics that may together make a population vulnerable, and such statistics allow the distribution of resources to demographics that are most susceptible to loss in the face of a disaster [57][54].

METHODS

The literature of disaster management research refers to three essential criteria to measure risk in the face of a disaster. For this purpose, risk is defined as the probability of loss. The criteria are: (1) hazard, or the scenario which causes harm; (2) vulnerability, or the susceptibility to loss or harm; and finally (3) resources, being the institutional and/or structural facilities in place to aid in disaster response [54]. A formula for risk is then:

$$\text{Risk} = \text{Hazard} * (\text{Vulnerability} - \text{Resources})$$

As the measure of study of social vulnerability is in its nascent state, there are no universal criteria for measuring either vulnerability or resources and existing SVIs are tailored to need. Institutions that have compiled SVIs have done so based on contextually relevant statistics. For example, the Center for Disease Control and Prevention has constructed an SVI to predict community response to disease control [54], while the Federal Emergency Management Agency constructed an SVI and an extensive social vulnerability training program for climate change, environmental disasters and terrorism [58].

Despite the lack of a universal SVI, certain groups of statistics are fairly universal. These include statistics representing socioeconomic status of populations within a study area, minority status and language, and statistics on household composition (including vehicle access), and population density.

All variables are converted into a percentage, so that all data points are on the same scale. The variables are then normalized into a percentile rank, as a proportion of overall scores within a study area. This occurs using the formula:

$$\text{Percentile Rank} = (\text{Rank} - 1) / (N - 1)$$

This is where the rank is the original percent figure, and N is the total number of data points.

AN SVI APPLIED TO UBC DEATHS

In the context of UBC deaths, which represent a prolonged mass fatality incident, a tailored SVI statistic represents issues encountered during survey administration. As this statistic does not need to measure whether groups within a population will need to survive, household statistics and access to motor vehicle statistics are not used. Compiled here (see Figure 21) are statistics based on resources available within each county, including the relative poverty of the county, education levels, and minority populations. Many of these statistics are autocorrelated, meaning that with a degree of statistical significance, these socioeconomic characteristics are socially and spatially linked.

Figure 21 lists all statistics utilized and the rationale behind their use. For most metrics, a high percentile rank equals less vulnerability. For example, a higher percentage share of a state's total hospitals may indicate greater access to medical resources. For two of the metrics used for this SVI - percent of the population of Hispanic descent, and percent of the population living below the poverty line - a lower percent indicates less vulnerability. So, to remain consistent, variables for which a lower score indicate less vulnerability, the percent rank was subtracted by 100 percent. This will convert these metrics into their inverse measure: percent of population below poverty, for instance, becomes population above the poverty line. This latter percentage is what will be used in the SVI summation. Thus, for all numbers that are compiled into the SVI, a higher score indicates less vulnerability.

Figure 22 represents the compiled SVI, which combines all of the listed metrics. Figures 23 through 28 illustrate each of the metric individually. To represent poverty and population of Hispanic descent, the non-converted metrics are displayed in the figures, even as the converted metric (described above) is used in the SVI measure.

Appendix B: Social Vulnerability Index.

Metric	Data Type	Rationale
General Fund, per capita	Resources	As enumerated in Figure 13 (page 44), lack of funding was often used as a means of justifying substandard practice as applied to the management of UBC deaths.
Counties percent share of state total hospitals	Resources	Because the survey exposed a lack of medico-legal resources to investigate death in many border counties (some counties reported that they did not even have access to radiography equipment), a proxy to represent medical resources is the presence of hospitals.
Population density	Vulnerability	In the case of low population densities, as are present in many border states, the distance to resources for individuals within these areas are great. Similarly, given less population density, bodies in the wilderness are less likely to be found.
Percent of population (over 24) with bachelor's degree or higher	Vulnerability	Response to UBC deaths, and adequate steps being taken to identify unknown UBC individuals requires a certain amount of access to information about best practice, and the ability to surmount various bureaucratic hurdles to follow best practice. Research shows that people with higher education are more likely to act upon information that could inform adequate response to a disaster-scenario, as well as cope with and recover from disaster even in the face of bureaucratic hurdles [54].
Percent of population living below the poverty line	Vulnerability	A population living below the poverty line may be less willing or able to reallocate already limited resources to respond to a local disaster. In conditions of poverty, the loss of already limited resources poses a larger hurdle from which to recover than it would for those who have greater wealth.
Percent Hispanic	Vulnerability	There are several levels on which minority groups are made vulnerable. <ul style="list-style-type: none"> • One is a history of discrimination in access to real estate, jobs and education [53][54][57]. As discussed briefly above, during Katrina, discrimination may still mean the denial of resources [53]. • Another involves willingness to engage with governmental authority, even to request resources, or in this case, search for a missing loved one [59]. • A third is language barriers. People with limited English proficiency may be less able to engage with local authorities, even if they wish to do so. Meanwhile, immigration from Latin America has statically increased in recent years, meaning there are higher populations whose first language was not English [54].
Number of UBC deaths, as a proportion of the highest number of UBC deaths in any county	Hazard	The data for this is inconsistent across counties, and that makes this statistic nearly impossible to compile. In fact, one of the most pressing recommendations of this manual is to begin the systematic collection of this data. From the standpoint of risk calculation and dedicating resources to address this risk, the absence of this data is significant.

Figure 21: This table lists the metrics used to create a SVI for the context of counties dealing with UBC deaths. Compiled, these statistics will allow for the visualization of resource distribution needs for counties experiencing high numbers of UBC deaths.

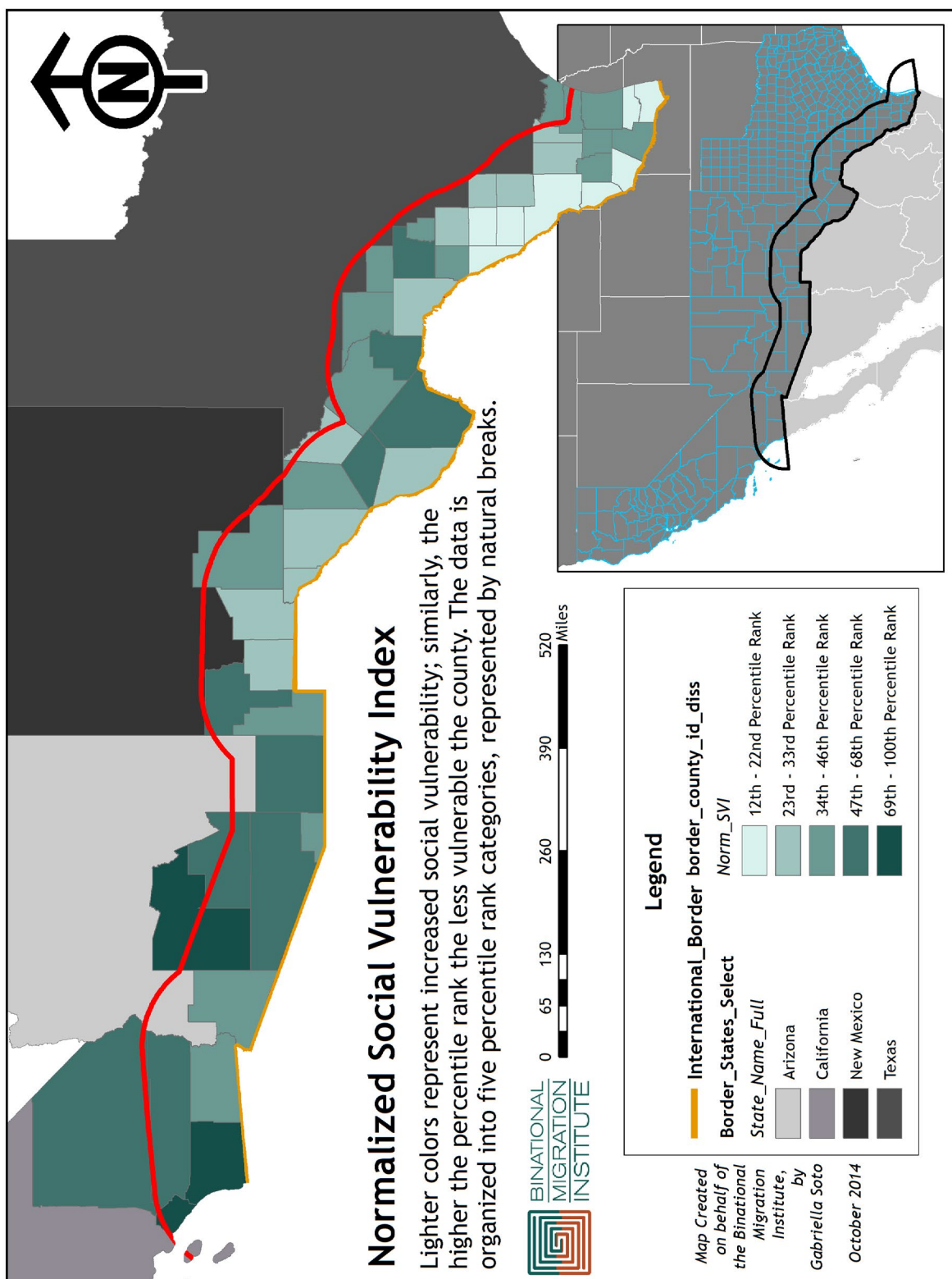


Figure 22: A Social Vulnerability Index tailored to represent counties most in need of external resources when experiencing high numbers of UBC deaths. Where this manual has outlined best practices to examine, identify and enumerate UBC descendants, this statistic acknowledges the socioeconomic factors which are also at play in the U.S.-Mexico border region.

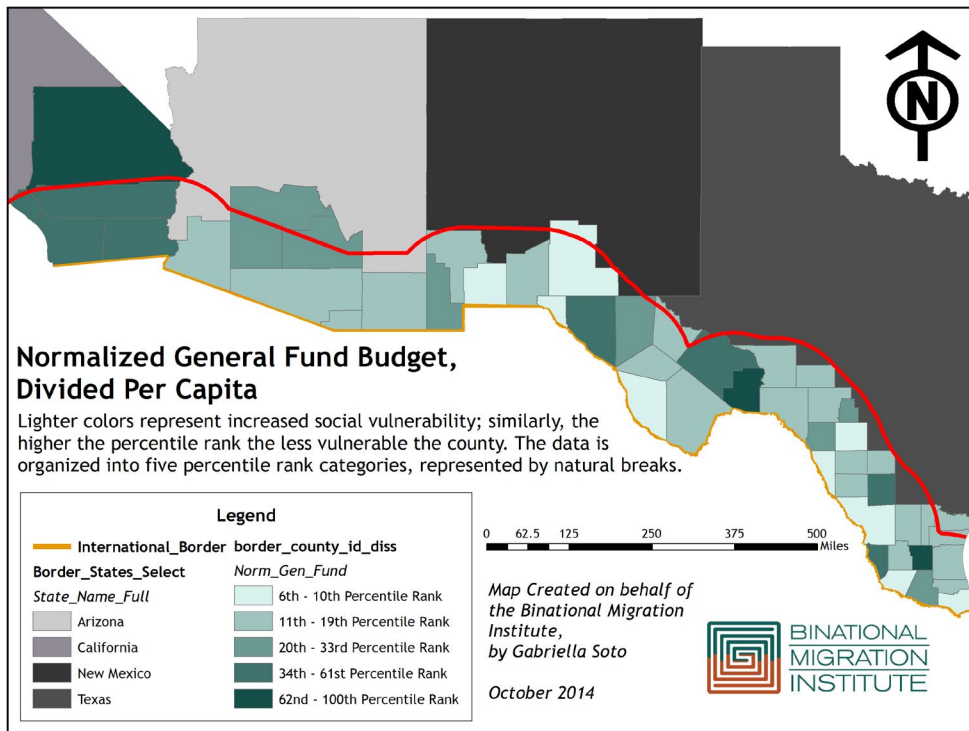


Figure 23: The general fund budget, divided to represent per capita budget dollars. Budget figures were then normalized into percentile rank.

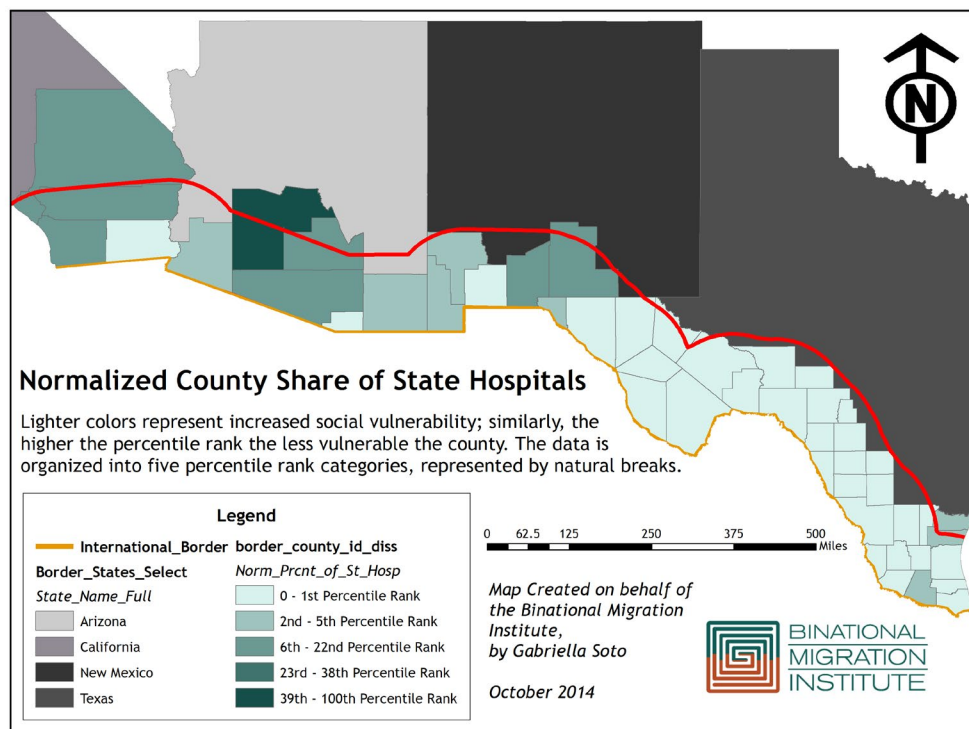


Figure 24: Normalized percent share of state hospitals in county. Figure was obtained by dividing the number of hospitals in county by total number of hospitals in the state. The amounts were then normalized into a percent rank.

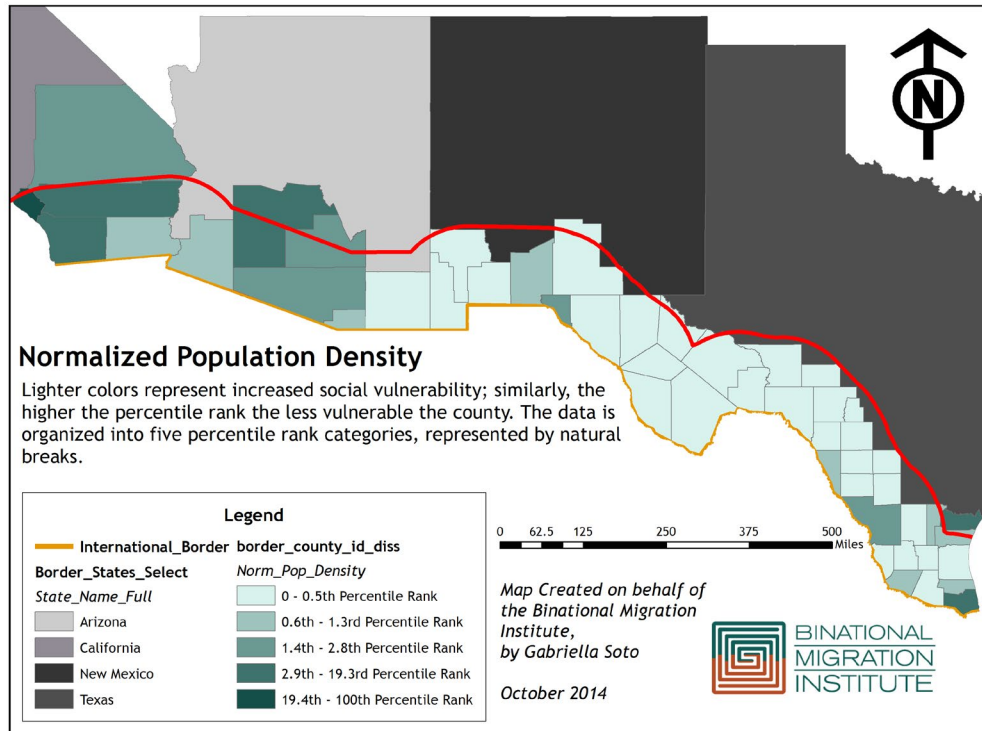


Figure 25: Normalized population density, obtained by dividing total population per county by county square mileage. The figure was then normalized into a percent rank.

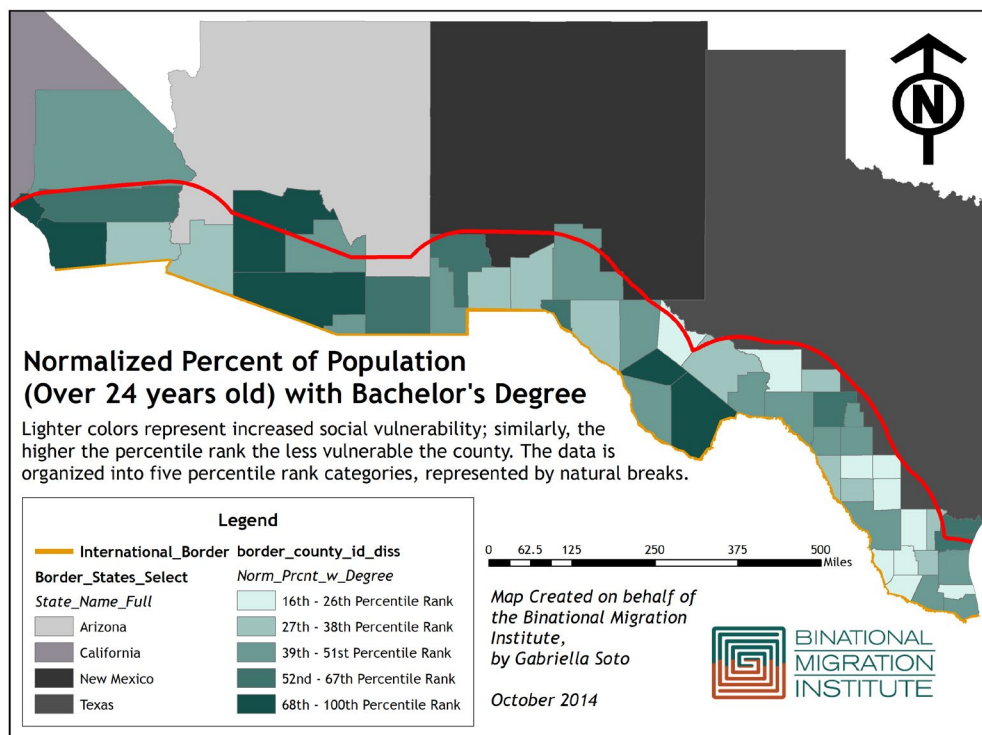


Figure 26: Normalized percent of population (over 24 years old) with a Bachelor's Degree or higher. The figure was then normalized into a percentile rank.

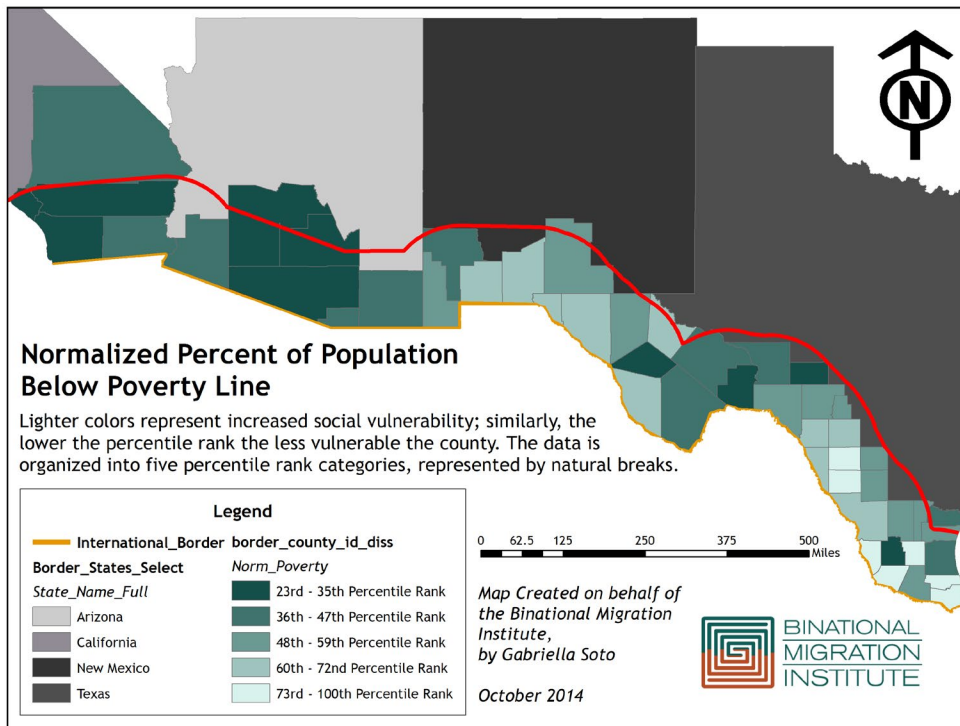


Figure 27: Normalized percent of population living below the poverty line. The figure was then normalized into a percentile rank.

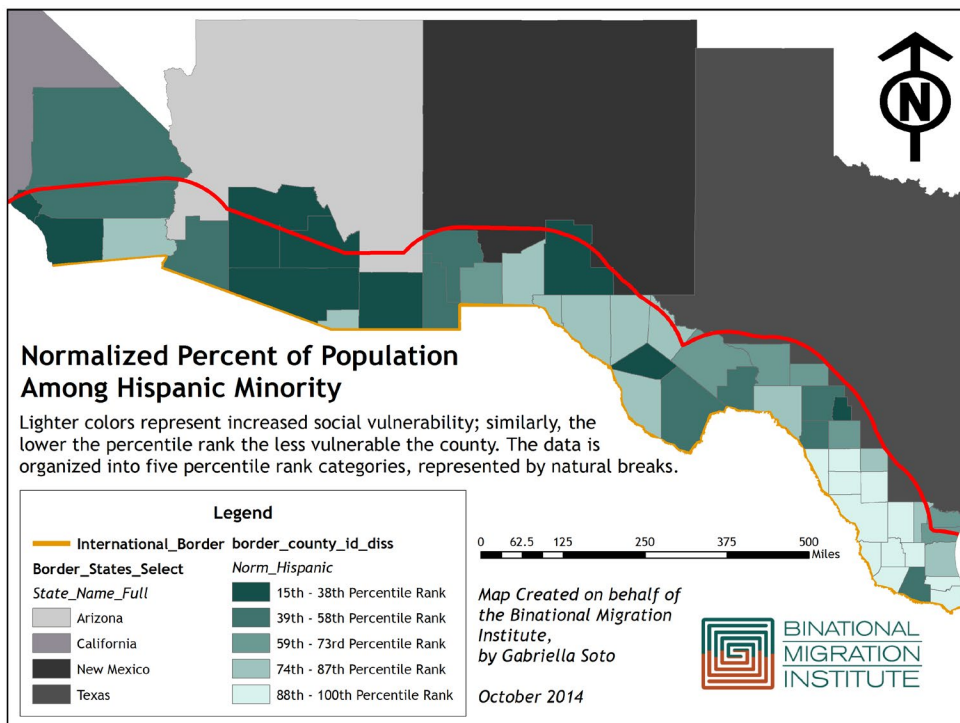


Figure 28: Normalized percent of population of Hispanic descent. The figure was then normalized into a percentile rank.

Appendix C: Excerpt from “The Identification of Unknown Undocumented Border Crossers (UBCs): Recommendations for the Improvement of Current Methods” [41]

(PAGES 9 THROUGH 10)

Why MtDNA Typing is not enough

Mitochondrial DNA alone has very low discriminating power because many individuals within a population share the same mtDNA type. The probability that two samples would match purely by chance is proportional to the frequency of the type observed in the population. African populations are the most genetically diverse populations in the world. MtDNA HVSI sequence variation observed in 2,847 African individuals from 50 populations...indicates only ~70% discrimination capacity.... Thus, even for the most diverse populations in the world, on average there is a 30% probability (one minus the discrimination capacity) that two unrelated individuals will match their HVSI sequence by chance.

The sharing of mtDNA types is even higher in Native American populations where mtDNA diversity is low compared to African, Asian, or European populations. Prior to the Spanish conquest, the Americas were inhabited by populations whose ancestors crossed the Bering Land Bridge from Asia somewhere between 20,000-10,000 years ago. Because all Native American populations were established by relatively few individuals, many Native Americans share the same mtDNA type. Within the past 500 years, a significant number of immigrants from Europe and Africa have assimilated into populations living in the Americas, bringing new mtDNA into populations and increasing genetic diversity. The degree of European or African admixture varies greatly depending on the population. Populations living in urban environments (e.g., Mexico City, Guatemala City) generally have a larger degree of European admixture (22-86%) than indigenous populations living in the central or western regions. Notably, the degree of admixture is not the same for males and females. During the recent European and African colonizations of the Americas, more males than females have come to regions in Latin America. Thus, mtDNA is inherited only from the mother shows lower rates of admixture (and lower diversity) than nuclear DNA....

Low mtDNA diversity in a population means that there is a very high probability that two individuals from this population share the same mtDNA type even if they are not from the same family. For example, in three Hispanic populations in the southwestern US, Mexico, and Costa Rica, the probability that two samples will match by chance ranges from 21.4% (cosmopolitan Mexico City and Monterrey, Mexico) to 67.5% (Central Valley, Costa Rica).... Therefore, to avoid “false positives” when using mtDNA, some other piece(s) of information must also be considered. The low discriminating power inherent in the mtDNA region can be overcome by adding a STR profile. The combination of mtDNA and STRs has the potential to accurately identify nearly all unknown individuals.

Nuclear STRs (CODIS Markers)

The vast majority of forensic and missing persons cases that utilize DNA technology use the 13 STR CODIS markers because they provide extremely high discriminating power (i.e., low false positive rate). The 13 CODIS markers have a high power because there is a high variability at

each of the 13 unlinked (i.e., independent) STRs. The probability that one individual matches another individual in the population by chance is a function of the cumulative multiplied frequencies of alleles at each of the 13 CODIS markers. This typically results in exclusion probabilities that are less than one in a billion....

Because of the high copy number... extracting mtDNA from bone is relatively easy compared to nDNA. Nuclear DNA from bone is often highly degraded and many times fewer than 13 STRs work. To address this limitation, John Butler and colleagues at the National Institute of Science and Technology (NIST) developed mini-STRs that permit the successful amplification of all 13 CODIS STRs even when DNA samples are highly degraded.

Appendix D: Resources

RESOURCE DIRECTORY, LISTED ALPHABETICALLY:

Government Resources

National Missing and Unidentified Persons System, www.namus.gov

Non-Governmental Organizations

The Argentine Forensic Anthropology Team, www.eaaf.org

Coalición de Derechos Humanos, www.derechoshumanosaz.net

Colibrí Center for Human Rights, www.colibricenter.org

No More Deaths • No Más Muertes, www.nomoredeaths.org/en/

Samaritans, www.tucsonsamaritans.org

South Texas Human Rights Center, <http://southtexashumanrights.org>

University Resources

Binational Migration Institute, <http://bmi.arizona.edu/>

Texas State Forensic Anthropology Center, <http://www.txstate.edu/anthropology/facts/>

The University of North Texas Center for Human Identification, <http://www.untchi.org/>

Appendix E: County Data Collected by BMI

The results reflected in data tables and analysis in this manual represent interviews with public officials, as well as personnel from cemeteries and mortuaries. Other private entities, including ranch owners and personnel from non-governmental organizations were interviewed for insight into community responses to UBC deaths, but the results from these interviews are not included in the analysis for this manual. These private individuals were interviewed with clearance from the University of Arizona Institutional Review Board. Institutional Review was waived for interviews with public officials as interviews pertained to their official responsibilities.

AZ

COCHISE

People Interviewed: *Jan Fields (Medical Investigator)*

Offices Covered: *Coroner*

PIMA

People Interviewed: *Dr. Bruce Anderson (Medical Examiner), Dr. Bruce Parks (Medical Examiner), Robin Reineke (Graduate Student), Gene Hernandez (Medical Investigator), Dr. Cynthia Porterfield (Forensic Pathologist), Guadalupe Castillo (Activist)*

Offices Covered: *Medical Examiner, Missing Migrant Project, Derechos Humanos*

PINAL

People Interviewed: *Beth Maskaski and Laura Stewart (Medical Investigators)*

Offices Covered: *Medical Examiner*

YUMA

People Interviewed: *Robert Vigil (Medical Investigator)*

Offices Covered: *Medical Examiner*

CA

IMPERIAL

People Interviewed: *Thomas Garcia (Supervising Deputy Coroner), Rodolfo Barron (Deputy Coroner), Jesus Lara (Deputy Coroner), Chuck Jernigan (former Undersheriff and Terrace Park Cemetery Director), Norma Saikhon and Victor Rocha (Public Fiduciaries)*

Offices Covered: *Coroner, Terrace Park Cemetery, Public Administrator (Fiduciary)*

SAN DIEGO

People Interviewed: Leah Burton (*Medical Investigator*)

Offices Covered: *Medical Examiner*

NM**BERNALILLO**

People Interviewed: Terry Coker (*Senior Deputy Medical Examiner*)

Offices Covered: *Medical Examiner*

TX**BREWSTER**

People Interviewed: Brian Sikes (*Law Enforcement Specialist for Big Bend National Park*), Jeff Vadjos (*Texas Ranger*), Jim Burr (*Justice of the Peace*)

Offices Covered: *Texas Rangers, Justice of the Peace, Big Bend National Park*

BROOKS

People Interviewed: Benny Martinez (*Deputy Sheriff*), Presnell Cage (*Ranch Owner*), Luis Solis (*Justice of the Peace*), Father Mathew Stephan (*Priest at Sacred Heart Church*), Raul Ramirez (*Judge*) Dr. Vickers (*Veterinarian, Texas Border Volunteers*) Lavoyger Durham (*Rancher*)

Offices Covered: *Sheriff, Justice of the Peace, County Judge, Local Church, Ranchers, Various NGOs*

CAMERON

People Interviewed: Alvaro Guerra (*Sergeant*), Shawn Palmer (*Texas Ranger*), Jose Juan Lara and Gladys Canas (*Instituto Tamaulipeco Para los Migrantes*), Rogelio Nunez (*Casa de Proyecto Libertad*) Arnold Arguillen (*Medical Investigator for Valley Baptist Medical Center*), Sallie Gonzalez (*Justice of the Peace*)

Offices Covered: *Sheriff, Texas Rangers, Justice of the Peace, Mortuary, Various NGOs*

CULBERSON

People Interviewed: Oscar Carillo (*Sheriff*)

Offices Covered: *Sheriff*

DIMMIT

People Interviewed: *Joel Gonzalez (Sheriff)*

Offices Covered: *Sheriff*

EL PASO

People Interviewed: *Irene Santiago and Anabel Salazar (Medicolegal Investigators), Dr. Paul Shrode (Medical Examiner)*

Offices Covered: *Medical Examiner*

HIDALGO

People Interviewed: *Rudy Espinoza (Captain), Ismael Ochoa (Justice of the Peace), Martha Sanchez (Coordinator of La Union del Pueblo Entero), Ramona Casas (Community Organizer for A Resource in Serving Equality)*

Offices Covered: *Sheriff, Justice of the Peace, Various NGOs*

HUDSPETH

People Interviewed: *Alvin West (Sheriff), Robert Wilson (Captain)*

Offices Covered: *Sheriff*

JEFF DAVIS

People Interviewed: *Rick McIvor (Sheriff)*

Offices Covered: *Sheriff*

KENEDY

People Interviewed: *Chuck Kirk (Captain), Terry Gilbert (Chief Deputy)*

Offices Covered: *Sheriff*

KINNEY

People Interviewed: *Buddy Burgess (Sheriff)*

Offices Covered: *Sheriff*

LUBBOCK

People Interviewed: *Dr. Sridhar Natarajan (Medical Examiner)*

Offices Covered: *Medical Examiner*

MAVERICK

People Interviewed: *Kina Marie Mancha (Justice of the Peace), Aaron Valdez and Rito Valdez (Memorial Funeral Chapels)*

Offices Covered: *Justice of the Peace, Funeral Home*

NUECES

People Interviewed: *Rick Ortiz (Chief Forensic Investigator)*

Offices Covered: *Medical Examiner*

PRESIDIO

People Interviewed: *Juanita Bishop (Justice of the Peace), Elsa Villa Mata (Consul)*

Offices Covered: *Justice of the Peace, Mexican Consulate*

STARR

People Interviewed: *Marcos Rios (Investigator)*

Offices Covered: *Sheriff*

TERRELL

People Interviewed: *Clint McDonald (Sheriff), Corina Castro (Justice of the Peace)*

Offices Covered: *Sheriff, Justice of the Peace*

VAL VERDE

People Interviewed: *Joe Frank Martinez (Sheriff), Roy Elizondo (Sunset Funeral Home)*

Offices Covered: *Sheriff, Funeral Home*

WEBB

People Interviewed: *Dr. Corrine Stern (Medical Examiner), Padre Antonio (Priest with Casa Del Migrante Parroquia Sagrado Corazon), Jose Carmona (Director of Instituto Tamaulipeco para Atencion a Migrantes)*

Offices Covered: *Medical Examiner, Various NGOs*

ZAPATA

People Interviewed: *Ziggy Gonzales (Sheriff)*

Offices Covered: *Sheriff*

Appendix F: Common Abbreviations

BP	Customs and Border Protection's Border Patrol, charged with patrolling the United States border between ports of entry and enforcing U.S. immigration and customs laws.
CBP	Customs and Border Protection
CODIS	Combined DNA Index System (FBI)
DHS	Department of Homeland Security
DNA	Deoxyribonucleic Acid
DPS	Department of Public Safety
DOJ	Department of Justice
GIS	Geographic Information Systems, used for digital mapping
GPS	Geographic Positioning System, usually a handheld unit on which coordinates recorded
HSA	Homeland Security Act of 2002
ICE	Immigration and Customs Enforcement (Division of Homeland Security)
JP	Justice of the Peace
LE	Law Enforcement
ME	Medical Examiner
MPRS	Missing Persons Reports
NAMUS	National Missing and Unidentified Persons System
NON -LE	Non-Law Enforcement is any entity such as OME, Justice of the Peace, transportation contractors, human rights group etc. that are not necessarily part of a law enforcement agency.
OGIS	Open Geographic Information Systems, a digital mapping resource that is publically accessible online
OME	Office of the Medical Examiner
OTM	Other than Mexican
PE	Personal Effects
POE	Ports of Entry are official entries into the U.S. where U.S. government officials and customs agents check official entry documents.
UBC	Undocumented Border Crosser