



Stakeholder Perspectives on the DNA Identification of Transnational Missing Persons

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A report on qualitative data from the 2020 DNA Identification of Missing Migrants Stakeholder Forums and follow-up modified Delphi analysis

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About the study

This report provides a summary of the DNA Identification of Missing Migrants Symposium and Stakeholder Forums hosted by Texas State University and Lurie Children's Hospital in March 2020. The Forums and the data analysis were part of an NHGRI study, Genomics, Biometrics, and Identity R01HG009923. The research study was designed to facilitate discussion between stakeholders across the spectrum of professions and organizations involved in the DNA identification of transnational missing migrants to capture challenges from diverse perspectives and deliberate policy solutions. This study was reviewed expedited by Lurie Children's IRB #2019-2909.

Acknowledgments

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Cover image South Texas Human Rights Center, Falfurrias, Texas, April 2016 (SH Katsanis)

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PREFACE

Deaths of migrating people at the U.S.-Mexico border have been increasing. The struggles to prevent deaths, to locate and identify those who die, and to return decedents to their families are extensive. Barriers to the use of DNA for identifications are a significant factor in these struggles, one that our study team has followed over many years. Various groups have discussed challenges to the identification of missing migrants over the years, and minor improvements to systems continue. Two steps forward, one back.

“I think the measure of a society is how it treats its dead. And I don’t think who the decedent is should ever matter. Where you die shouldn’t have an impact on your experience and that’s domestic or international [...] whether you are an American citizen or somebody of foreign citizenship, [it is important] that you are treated with the same respect and that your body can eventually find its way home.” – *participant*

In **March 2020**, our study team convened stakeholders in the DNA identification of missing migrants in San Marcos, Texas for **the DNA Identification of Missing Migrants Symposium and Stakeholder Forums**. This quotation from the Stakeholder Forums reflects the views of all the attendees of the Symposium. The Symposium brought together a range of professionals who touch on the DNA identification of missing migrants in their work, and the two Stakeholder Forums were devised to tease out differences in views on how best to address the challenges in identifications of missing migrants. The two complementary Stakeholder Forums were designed to minimize conflict and maximize exchange in a research format where discussion could be recorded and analyzed. Points of agreement among these diverse groups are footholds to make progress towards solutions.

Achieving consensus among the relevant stakeholder groups on policy solutions is unrealistic. We sought to use traditional and novel social science strategies to convene the groups to gather insight on challenges, priorities, and solutions to improving DNA-based identifications. The Stakeholder Forums followed years of work mapping and identifying stakeholder categories.

This report is the culmination of a portion of the Genomics, Biometrics, and Immigration research study funded by the National Institutes of Health, through the National Human Genome Research Institute, to understand the policy landscape and stakeholder perspectives on how DNA data are managed in immigration contexts.

EXECUTIVE SUMMARY

The identification of missing migrants is fraught with challenges. The barriers that hamper the use of DNA for identification of missing migrants are an important aspect of these challenges. DNA has long been a key tool to identify the missing in the wake of mass fatalities, and its application to what has been called the ‘silent mass-disaster’ of deaths at the border is the focus of this work.

DNA identification of missing migrants is hindered by data sharing challenges. The majority of DNA data from unidentified human remains (UHR) are uploaded to the federal DNA database CODIS, while some may be uploaded to private databases. Families might provide family reference samples (FRS) to U.S. law enforcement or consular officials to upload to the federal DNA database or to U.S.-based or foreign non-governmental organizations to be uploaded to private databases. Family reference sample DNA data in a private database cannot be compared to UHR DNA data in the federal DNA database, and vice versa, because the DNA data in CODIS is protected in accordance with the database’s primary role in the criminal justice system. In the case of transnational missing persons, however, these protections contribute to data silos that limit comparisons of FRS and UHR DNA data. These core data sharing challenges are compounded by failure of officials to consistently collect samples from UHR and fears and logistical challenges that can prevent families from providing FRS.

We developed a research strategy to assess (1) the challenges stakeholders face; (2) varying stakeholder priorities; (3) potential agreement on solutions; and (4) gaps in data necessary to devise policy for the DNA identification of transnational missing people.

We invited representatives of the professional stakeholder groups in the DNA identification of missing migrants to participate in a Symposium and Stakeholder Forums, hosted in San Marcos, Texas in March 2020. Participating stakeholders included U.S. and international stakeholders in advocacy, science, government, and law enforcement roles. Stakeholder categories were mapped and stakeholders identified via prior projects. Our outreach strategy was designed to achieve an even representation of different stakeholder groups. This was key because the stakeholders in this sensitive context have distinct professional mandates that, despite a shared desire to prevent deaths and improve identifications, could lead to miscommunication, frustration, distrust, or conflict in group discussions. We developed the concept of a stakeholder forum, a cross between a community forum and a focus group, to elicit concentrated discussion from hand-selected, consenting participants. We hosted two forums for two groupings of stakeholders that we devised based on similarities in professional mandate to allow open discussion. This report highlights the agreement and disagreement among stakeholders of various types and on various topics across the two forums. Our goal is to provide a comprehensive report on their perspectives as a resource for further efforts in improving identification strategies.

BACKGROUND

The silent mass disaster of the missing

People disappear for a number of reasons, voluntarily or involuntarily.(Morewitz & Colls, 2016)
Each missing person case, like any crime investigation, reflects the complexities of the lives of those involved; investigations must be informed by a combination of scientific evidence and circumstantial details. In 2007, Nancy Ritter called missing and unidentified persons cases the “nation’s silent mass disaster,”(Ritter, 2007) referencing the high volume of MP reports and slow rate of identifications that persist despite improvement efforts. The numbers are dynamic, with cases being entered and cleared daily across hundreds of jurisdictions.(Adams, 2016)

The differing approaches to UHR casework depending on whether the region where the remains are found has sustained resources for death investigations is another symptom of the inadequacies of the framework for investigations

A missing person investigation begins with a police report of the person missing, including their last known location, circumstantial information regarding their disappearance, and any identifiable features of the person. Depending on the type of MP report (e.g., child, elderly person) and the jurisdiction where it is filed, a specified amount of time might need to pass before the investigation proceeds. Federal law states that no jurisdictional policy for reporting can require “the observance of any waiting period before accepting a missing child or unidentified person report” (USC Title 42 §5780) and requires reporting of missing children to the NCIC (USC Title 42 §5779).(Adams, 2016)

Inadequate medicolegal systems, poor data sharing practices, and jurisdictional disparities in scientific data collection

Death investigations similarly vary depending on the jurisdiction where the decedent was found. These variables and the discretion granted to LE undoubtedly contribute to potential biases in MP death investigations. The lack of consistency in death investigations was noted by the National Association of Medical Examiners (NAME) in 2004; among their concerns was that an elected official (e.g., sheriff, coroner, Justice of the Peace) often has the power of death determination and that elected officials are not necessarily physicians.(Adams, 2016; National

Association of Medical Examiners, 2004) Many jurisdictions in the United States bury or cremate UHR without first collecting DNA evidence.(Adams, 2016; Ritter, 2007) The NAME report illuminates the limitations in UHR investigations resources, stating, “Lack of qualified investigators and forensic pathologists, insufficient and outdated facilities, shortfalls in equipment and supportive manpower, insufficient funding, and disparate availability of needed consultative services can result in miscarriages of justice or unacceptable risks to the public’s health.”(National Association of Medical Examiners, 2004) Some UHR cases might be criminal, violent cases requiring LE involvement to pursue crime-related leads. Other unidentified deaths might be accidental or the result of neglect, in which case the motivation of LE to investigate the identity of the decedent might be diminished. The NIJ-funded NamUs program provides resources for forensic analyses of remains, but the limited number of forensic laboratories handling these cases has resulted in bottle-necks that delay identifications.(Katsanis, Madden, Siegert, Canales, & Spradley, 2021)

The differing approaches to MP casework depending on the location of the event and the demographics of the person missing is a symptom of the inadequacies of the framework for investigations

Delayed identifications of decedents have detrimental effects on the families of the missing

When a loved one goes missing, family members are left wondering what happened, where their loved one is, and whether they are alive or dead. Left-behind family members often develop psychosocial reactions due to the distress of not knowing what has happened to their loved one. Family members might feel guilty, accuse themselves, or become angry; they might become socially withdrawn and lose interest in participating in their normal activities.(Morewitz & Colls, 2016) This state of uncertainty has been termed ambiguous loss; ambiguity around the status of a loved one prevents grieving and closure, with detrimental effects on family members.(Boss, 2000) A member of the Caravan of Mothers of Missing Migrants, Ángela Lacayo, describes the disappearance of her son: “It’s not easy; the pain is forever present. It’s a wound that doesn’t heal. It doesn’t heal. It will heal when we know and have news of our sons and we find them.” Both Lacayo and Araceli de Mejía, another Caravan member, describe the importance of sharing with others the experience of searching for a missing loved one and of finding support for the emotional pain and mental and physical illnesses that often result.(Weld, Villeda, & Cuéllar, 2021) Advocacy groups like the Caravan also play a role in locating missing persons, particularly in communities of color. TJ Smith, former chief spokesperson for the Baltimore Police Department stated, “when it comes to missing persons, it matters when you have advocacy groups getting that

Accounting for variations in the timelines of different case types is paramount since delays directly affect the families of the missing.

information out and helping family members who are going through a lot.”(Gandbhir, Knowles, & Richen, 2021)

U.S.-Mexico border identifications epitomize the challenges in data sharing and data systems for MP cases

The lack of a coherent process for investigating transnational deaths is particularly acute, both in the UHR handling and MP reporting processes. Back in 2006, the GAO acknowledged this crisis, noting the growth in death rates at the U.S.-Mexico border.(U.S. Government Accountability Office, 2006) In U.S.-Mexico border states, hundreds (maybe thousands) of human remains appearing to be migrants are found or exhumed.(Hinkes, 2008; Soto, 2020; M.K. Spradley, 2014) Migrants come from Central America, Mexico, South America, and as far away as Haiti, India, Bangladesh, Ukraine, and Africa.(Zavis, 2016) Migrants die all along the 2,000-mile border, but in recent years the Rio Grande Valley has become a major migrant corridor into Texas. Brooks County, located over 70 miles north of the Texas border with Mexico, has the most recorded deaths within the Rio Grande Valley.(Katsanis & Spradley, 2020) Although Brooks County is not located along the border, it handles many migrant deaths due to the presence of a U.S. Customs and Border Patrol checkpoint.(M. K. Spradley, Herrmann, Siegert, & McDaneld, 2019) Brooks County has no mountains for orientation, only trees and scrub brush that look the same from every direction, leaving migrants disoriented. In the summer heat, migrants can easily get lost, exhausted, and dehydrated. When a migrant is reported missing in South Texas, permission of the landowners is required to search the massive, private ranchlands for human remains; if permission is not granted, no search happens. Anyone on a ranch who finds human remains is legally required to call the authorities, and a Justice of the Peace will decide if the death will be investigated as a crime. Landowners do not always call the authorities, however, and if they do call, the Justice of the Peace might assume the remains are of a migrant and forgo any formal or criminal investigation into the cause of death or the identity of the deceased.(Katsanis & Spradley, 2020) The lack of a centralized medical examiner system in Texas worsens the identification challenges, with broad inconsistencies in resources and handling of UHR across the state.(U.S. Government Accountability Office, 2006)

Cross-border investigations are encumbered by jurisdictional challenges, international data sharing protections, and the fact that some families are fearful of law enforcement.

Migrants are sometimes buried without autopsy or DNA sampling

Since 2008, more than 900 UHR have been found in Brooks County. Such unexplained deaths are typically subject to a death investigation, which in most places includes an autopsy with DNA sampling. In South Texas, prior to 2013 corresponding laws and practices often were not followed in the case of migrant deaths, meaning DNA samples were not taken and bodies were buried in marked or unmarked graves.(Frey, 2015; Katsanis et al., 2021; Kovic, 2013) Due to the lack of case tracking by LE, it is unknown how many unmarked graves might contain the remains of missing people.(M. K. Spradley & Gocha, 2020) We call these individuals, those who were found, buried, and forgotten without any effort to identify them or their families, the “long-term dead.”(Katsanis et al., 2021) To investigate the identities of these individuals, graves along the South Texas border are being mapped and exhumed to collect DNA and other anthropological data.(Katsanis et al., 2021) Operation Identification, a community-engaged project run through the Forensic Anthropology Center at Texas State University, exhumes and conducts anthropological analyses on individuals buried without an examination. Thus far, 44 of 163 individuals have been identified and more graves await exhumation.(Katsanis et al., 2021)

Identifications of migrant remains in Texas are encumbered by the lack of resources in South Texas, the vast stretches of treacherous terrain, the fact that many die on private land, and the lack of a centralized medical examiner system.

Existing DNA data sharing practices for UHR and MP are inefficient

Even through medicolegal channels, it often takes years to identify the unidentified deceased, and identification processes are particularly complicated for border regions.(Sozer, 2014) DNA data from the sample might be uploaded into CODIS for comparison with the MP index and FRS index.(Katsanis et al., 2021) Federal privacy laws that govern CODIS mandate that in order to be included in the database, FRS must be taken by LE personnel or a designated affiliate.(Katsanis et al., 2021) Ideally, at some point family member(s) will report the missing person to LE and provide FRS to LE. In theory, any jurisdiction in the United States can take a MP report and an FRS, then submit that FRS to a CODIS DNA laboratory. However, many families report being turned away by LE when reporting a missing person outside of the family’s home jurisdiction. For migrant families,

DNA data from MP and UHR are siloed in different databases, delaying identifications. Cooperation across LE and humanitarian efforts will improve identifications.

multiple barriers limit identifications. CODIS was designed for criminal casework, not for MP identifications. To protect the quality of the data, CODIS has restrictions on access appropriate to its place as a core tool in the American criminal justice system. While CODIS provides a path to identification via genetic association, its access restrictions create heavy paperwork burdens for FRS and UHR submissions. Moreover, crime laboratories focus their efforts on high priority casework, where a person's life or liberty might be at stake,(National Research Council, 2009) delaying UHR and FRS processing. CODIS laboratories also require a MP case report number from a U.S. jurisdiction, which might not be possible if the report is filed outside of the United States.(Katsanis et al., 2021) Most importantly for transnational missing cases, the requirement that FRS be collected by LE personnel limits the receipt of missing persons reports from families. Relatives of the missing might be unwilling or unable to provide FRS to LE, perhaps fearing deportation of themselves or their family members. Further, public awareness of a MP report can endanger the lives of the family and that of the migrant. Family members reporting a missing person often are extorted using threats and false promises about the fate of their loved one.(Bemiss & Molomot, 2020) These challenges have not gone unrecognized by stakeholders.(Katsanis et al., 2021)

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STUDY METHODS

Study team

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Diana Madden is a Behavioral Research Coordinator in the Mary Ann & J. Milburn Smith Child Health Outcomes, Research, and Evaluation Center of Lurie Children's Hospital of Chicago. She also serves as a Council Member for the Lurie President's Council on Equity, Diversity & Inclusion.

Courtney Siegert was during this project a Doctoral Research Assistant with Operation Identification (OpID) under Dr. Spradley's leadership. She currently works with the International Committee of the Red Cross.

Kate Spradley is a Professor at Texas State University in the Department of Anthropology. She is a biological anthropologist and Founder and Director of Operation Identification (OpID) at the Forensic Anthropology Center at Texas State.

Genomics, Biometrics, and Identity team

In addition to the co-authors, the Genomics, Biometrics and Identity NIH grant collaborators included Nita Farahany, Meredith Van Natta, Dylan Stonecipher, Zecilly Guzman, and Armani Porter. Advisors and consultants to the project included Jennifer K Wagner, Eduardo Canales, Dan Berger, Bruce Budowle, Amanda Sozer, Christopher Miles, Amy Mundorff, and Thomas J Parsons.

Genomics, Biometrics, and Identity funding

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Prior Research

Our team's research on missing migrants and DNA data sharing strategies is an off shoot of our broader interest in use of DNA data for human rights, humanitarian efforts, and criminal investigations, focusing on sex trafficking, adoption fraud, child trafficking, and various immigration contexts. Our work to map stakeholder categories and identify stakeholders began in 2014 with a field visit to Texas to learn about DNA data uses in immigration. At a 2015 DNA-PROKIDS meeting held in Houston, Texas,¹ we encountered Consular officials and law enforcement who were actively struggling with missing migrant cases that were delayed in identifications and repatriations.

Subsequently, the Science, Ethics, Human Rights and Identity Kenan Creative Collaboratory project ran July 2015 to December 2017, funded by Kenan Foundation. The overarching goal of this partnership between Duke University and North Carolina State University was to connect pioneering research in forensic sciences to social science research in ethics for human identification, using this bridge as a backbone for opening dialogues on policy approaches to employing science for human rights. The International Missing Persons DNA Identification project ran July 2016 to June 2018, funded by the Josiah Charles Trent Memorial Foundation Endowment Fund. This award at Duke University supported research on missing migrants to assess the role of non-governmental organizations in managing missing persons identification across borders.

Through our interviews with stakeholders, we documented significant challenges (practical, ethical, and legal) in processing and sharing DNA samples and profiles within and across borders for identification of deceased migrants. Our research has examined the challenges in processing identifications at the US-Mexico border including: (1) lack of DNA collection from remains found in the U.S.; (2) lengthy turnaround times for processing DNA; (3) insufficient funding for human remains analyses; (4) inadequate communication among government and non-government advocates; (5) sovereignty issues with specimen collections; (6) inadequate genomic markers used for distant kinship analysis; (7) inability to share profiles across platforms; and (8) inadequate protections for undocumented families of the missing. (Devereaux, 2017) We found that DNA data from human remains in the U.S. might or might not be uploaded into a common database with the FRS collected from missing persons' reports (see **Figure 1**).

¹ Using DNA to Reunite Migrant Children with their Families, January 16, 2015; Embassy Suites, Houston, Texas. Sponsored by DNA-Prokids, University of North Texas Health Science Center and Universidad de Granada

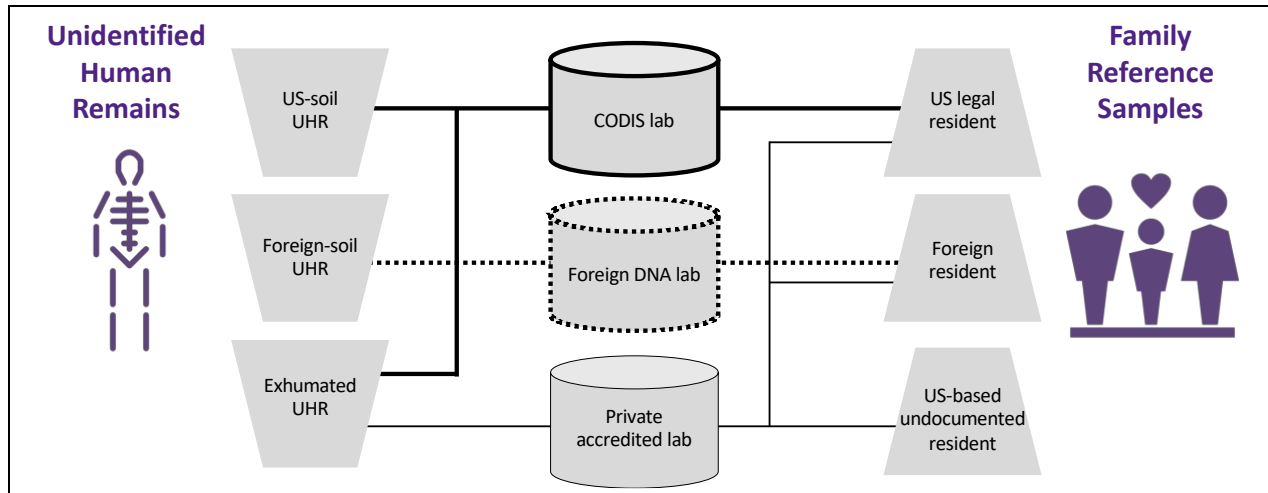


Figure 1. DNA data flow in missing migrants casework. The challenges of data sharing within the constraints of the current missing persons infrastructure are highlighted by processes to identify human remains at the US-Mexico border. CODIS missing persons program is designed to compare remains found in the U.S. The urgency of advocates to ID deceased migrants has led them to use of private laboratories for processing cases, resulting in a duplicative system, fragmentation of efforts, and fewer identifications.

These early findings led us to conduct formal **stakeholder research** to capture varying perspectives among stakeholders that might be obstacles to policy and practice improvements. **Figure 2** outlines the timeline and process of the development and analysis of the Stakeholder Forums as our mechanism to organize and assess the challenges directly from stakeholders.

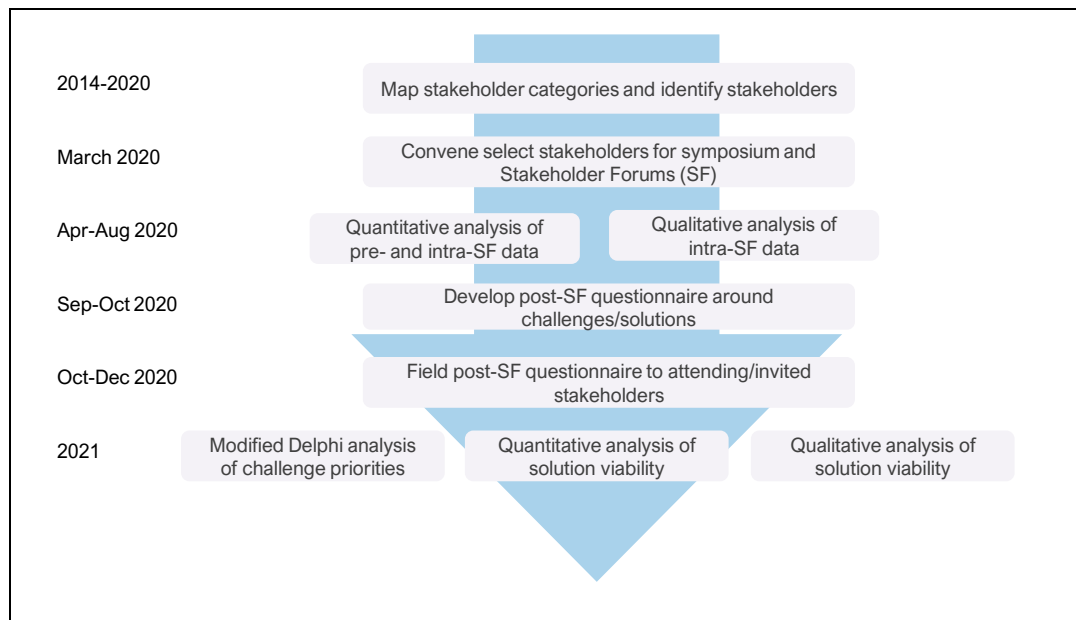


Figure 2. Preliminary work and study process

Here we describe the methodologies used in the Stakeholder Forums and post-Forum data collection and analysis.

Human subjects

This study was conducted under Lurie Children's Hospital IRB #2019-2909. Signed consent was obtained from all Forum participants. Participants selected a pseudonym to be used during the forums after consenting. A National Institutes of Health Certificate of Confidentiality covered the protocol and data.

Symposium and Stakeholder Forum Participant Outreach

The participating stakeholders could speak freely during the Forums with the protection of anonymity as research participants. To further maximize exchange and minimize conflict, we hosted two separate forums: one for stakeholders whose professional mandate fell broadly under humanitarian resolution of MP cases and one for stakeholders whose professional mandate fell broadly under law enforcement. In a modified Delphi process, we coded the transcripts of the forums for challenges and solutions, which were used to develop a post-Forum questionnaire. This was sent to stakeholders in Fall of 2020, where we asked them to rank challenges for priority, evaluate solutions for validity, and provide feedback.

Starting with the prior stakeholder research (described above), we compiled a list of potential Forum participants and their contact information by stakeholder category (see **Table 1**) based on prior work and ongoing contact recommendations from stakeholders.

The Symposium was open to all invitees, including all Forum participants, though only select invitees were asked to give presentations. Each Forum was capped at no more than 2-3 participants from any stakeholder category to enable in-depth discussion and broad representation of each group. We sent rounds of invitations according to our first, second, third, and fourth choice Forum participants to ensure even representation of each stakeholder category.

Participants are described in detail below.

Stakeholder Forums Structure

The Stakeholder Forums were embedded in a two-day Symposium that gave all the participants the opportunity to hear presentations from representatives of each stakeholder group prior to the Forum sessions. Interpreters were provided for the symposium; the Forums were held in English.

Not all Symposium attendees were invited to join the Stakeholder Forums for three reasons. First, we wanted to avoid over-representation of any stakeholder group in a Forum, so we chose to include only two representatives of each group. Second, we wanted to limit Forum sizes to fewer than 20 people per group, including the study team members, to facilitate conversation. Third, we wanted to include only those participants with a stake in the DNA identification processes, excluding stakeholder participants whose interest was in location of human remains, handling of remains, or return of remains, i.e., groups that do not have a direct stake in DNA identifications.

Stakeholder Forum participants were asked to fill out a **pre-session questionnaire** via Qualtrics on site after consenting. **Demographics** collected included age, race, country of origin, native language, **stakeholder category** (see **Table 1**), professional **role** (e.g., academic, researcher, administrator, faculty, director, staff, or student/trainee), and **education level**. The **pre-session questionnaire** (see the **Appendix 2**) also included 5-point Likert scale questions on DNA sampling and analysis processes. Stakeholders were asked to rate agreement with 2-3 statements each about unidentified samples processes, FRS sample collection processes, legal parameters of CODIS, DNA data storage and sharing, and DNA sample analyses and DNA data matching processes.

Forum participants were grouped into one of two forums, one for those whose primary professional role is related to law enforcement or government (“**Jeffreys**” group), and one for those whose primary professional role in the United States is related to humanitarian work or advocacy (“**Franklin**” group) (See **Table 1**). These names were chosen as neutral names based on well-known experts in the field of genetics and forensics. Stakeholders in the Jeffreys grouping have a professional mandate to serve U.S. local or federal government, while those in the Franklin grouping have a professional mandate for humanitarian resolution of MP cases and advocacy for families’ needs. These forum groupings were designed to maximize consensus and minimize conflict during the open discussion to encourage participation. Both forums followed the same **discussion guide** (see **Appendix 3**).

Each Forum was hosted in a closed room and each participant was provided with an audience participation device (Qwizdom clicker), a pencil, a single notecard, and a name card with their alias for use in coding the participants’ identities. Participants and study team members sat in a circle and a projector was used to display discussion questions and audience response questions/results at the front of the room. Given the sensitivity of the topic, ground rules for respectful conversation were laid out at the beginning of each Forum. The discussion guide included audience response questions, including multiple choice and Likert scale questions, open-ended discussion questions, and one short writing exercise, responses to which were collected and read out to prompt further discussion. The audience response system software and clickers were used to collect live responses from Forum participants to multiple choice and Likert scale questions before each related open discussion question. The group’s responses were displayed in aggregate on the screen to prompt discussion. Participants were also asked to complete a short writing exercise with pen and notecard in which

they were asked to list in 10-15 words or fewer what specific challenges they had experienced in using DNA to identify migrants. Responses were collected and shared anonymously with the group to prompt discussion.

Table 1. Stakeholder categories

“Jeffreys” Law Enforcement / Government Stakeholders	“Franklin” Humanitarian / Advocacy Stakeholders
CODIS DNA forensic laboratories	Anthropology investigators
Federal database managers	Consulates
Federal law enforcement	Human rights attorneys
Government officials	Humanitarian organizations (domestic and international)
Justices of the Peace	Intergovernmental law enforcement*
Local law enforcement	Intergovernmental organizations
Medical examiners / coroners	Migrant family advocates
	Non-CODIS DNA laboratories

This list excludes stakeholders with a stake in identifications but not in DNA data management, like funeral homes

**Intergovernmental law enforcement was included in the Franklin grouping, as the primary role of attending stakeholders in the U.S. missing migrant context is to assist in humanitarian identifications and not to enforce U.S. laws*

Stakeholder Forums Data Analysis

The Forums’ audio recordings were transcribed and the responses to the pre-session questionnaires and audience response collections were saved. The handwritten challenge cards also were transcribed. Each transcript was broken down by Forum guide theme, associated discussion question, speaker, and quotation. Each quotation was coded for positive or negative statements, actionable policy suggestions, and specific problem(s) identified. If present, positive or negative statements were excerpted. If present, specific problems and actionable policy suggestions were summarized in sentence form. Subthemes were then generated based on these codes (see the **Appendix 5** for the codebook). Finally, coded problems/challenges and solutions were formulated into simple sentences and compiled by theme. The pre-session and during session questions, all multiple choice or Likert scale questions, covered UHR data sharing, FRS data sharing, rapid DNA, investigative genetic genealogy, and the CODIS detainee index. The pre-session questionnaire also covered CODIS reports, private oversight, and turnaround times. The during session questions also covered state models and effectiveness. All quantitative responses were reviewed side-by-side for consistency in responses across overlapping topics before and during the Forums and consensus or disagreement across stakeholder categories.

Post-Forum Data Analysis

A **post-Forum questionnaire** was developed based on the list of challenges and solutions stated by the participants with the aim of assessing priorities of the challenges and viability of suggested solutions. It also provided the opportunity for further comment from stakeholders. The questionnaire was sent to Forum participants and select participants that were invited to the Forums but unable to attend. The latter group were added to ensure participation from all stakeholder groups. Stakeholders were asked to rank topic groups of **challenges** from most to least important to address to evaluate stakeholder priorities. Stakeholders also were invited to comment on their priorities for each grouping. Priorities were compared between stakeholder groups along the Stakeholder Forum groupings (“**Franklin**” and “**Jeffreys**”). **Solutions** proposed during Stakeholder Forums were tested in the post-Forum questionnaire using 5-point Likert-scales of Like-Dislike. Each Like was followed with an open-ended field for how best to implement the proposed solution; and each Dislike was followed by an open-ended field for why the solution was not viable. Stakeholder comments were also coded for common themes.

FORUM PARTICIPANTS

Overview

A total of 120 invitations were sent via e-mail to representatives of each of the 15 stakeholder categories. Fifty-three representatives of all stakeholder group agreed to attend; however, due to the start of the COVID-19 pandemic, 14 of the participants that planned to attend had to cancel just prior to the event. As a result, we had no participants representing either the *government agency* nor the *human rights scholars* stakeholder categories in attendance. Ultimately, 39 attended the Symposium, plus six team members, and 26 of the attendees were consented to participate in the Forums.²

Of the 26 attendees invited to the post-Forum questionnaire, 14 responded; one of the twelve non-attendees completed the questionnaire, for a total of 15 respondents (see **Table 2**).

Demographics

We achieved a good representation of professions and age range among our participants; education levels reflected those expected. Participants skewed to white/European/Euro-American (see **Figure 3**).

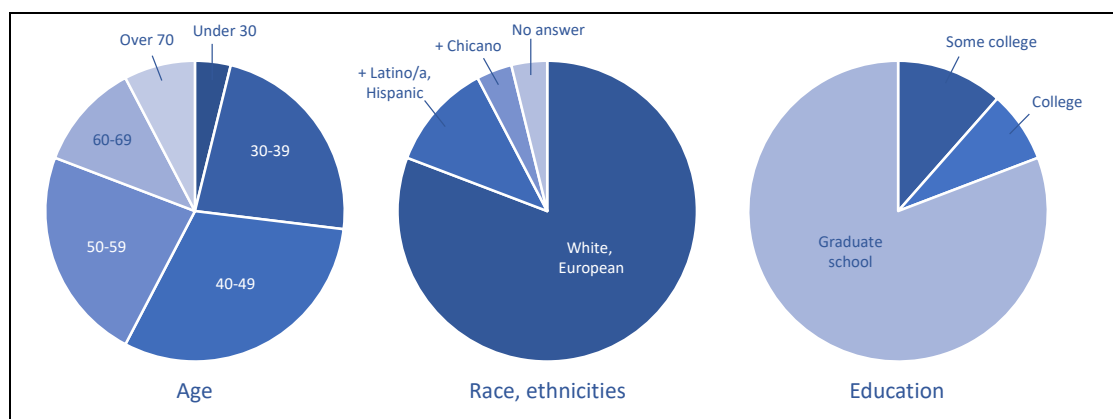


Figure 3. Demographics of participants in Forums

²Email addresses were not available for six Justices of the Peace. Invitations were sent to 120 stakeholders plus 9 study team members (4 of the 13 study team members were categorized as one of the 126 stakeholders). 7/120 (5.8%) emails bounced. 39/120 (32.5%) of stakeholders did not reply to the invitation; 16/120 (13.3%) of stakeholders declined with a range of reasons including illness, conflict in schedule, inability to get permission, and disinterest. 53/120 (44.2%) of stakeholders RSVP'd plans to attend. 14/53 (26.4%) stakeholders that had RSVP'd did not attend, 8 unable to attend due to work, 6 due to illnesses, resulting in **39 stakeholders in attendance, and 6 team members**, for a total recruitment rate of 31.0% (39/126).

Table 2. Stakeholder Forum participants and questionnaire respondents listed by Forum

“Jeffreys” Law Enforcement / Government Stakeholders	Stakeholder Attendees	Questionnaire Respondents	“Franklin” Humanitarian / Advocacy Stakeholders	Stakeholder Attendees	Questionnaire Respondents
CODIS DNA forensic laboratories	2	1	Anthropology investigators	2	1
Federal database managers	3	2	Consulates	2	1
Federal law enforcement	1	2*	Human rights attorneys	--	--
Government officials	--		Humanitarian domestic organizations	2	--
			Humanitarian international organizations	2	1
Justices of the Peace	2	1	Intergovernmental law enforcement	2	--
Local law enforcement	1	1	Intergovernmental organizations	2	2
Medical examiners / coroners	3	1	Migrant family advocates	1	1
			Non-CODIS DNA laboratories	1	1
Total	12	8		14	7

* The post-Forum questionnaire was first distributed to Forum participants and then to an expanded group of stakeholders; one stakeholder in the expanded group responded, increasing the number of federal agent questionnaire respondents to 3.

CHALLENGES, PRIORITIES & STATED SOLUTIONS

Overview of Challenges and Solutions

The study team coded the transcripts from the Forums, including the written notecards, to extract **challenges** in DNA identification of transnational missing persons. The challenges were stated by at least one stakeholder; therefore, the challenges do not represent the viewpoints of the study team or all stakeholders but illustrate the breadth of issues that are concerns to the various stakeholders. The post-Forum questionnaire was then used to gather feedback from the stakeholders on which challenges are **priorities**. Not every forum participant responded to the questionnaire, and one respondent had not participated in the forums, but both forums and multiple stakeholder categories were represented (See **Table 2**).

Similarly, the study team extracted from the transcripts **solutions** that were stated during the sessions. These stated solutions were then tested in the post-Forum questionnaire for **viability**, gathering quantitative agreement and qualitative comments on whether the solutions would improve identifications, whether and how they could be executed, and other comments. Because they emerged over the course of Forum discussions, solution statements might not directly answer challenge statements. However, the study team was able to group the challenge and solution statements under six topics:

1. Infrastructure
2. UHR recovery
3. FRS processing
4. DNA data sharing
5. Education and communication
6. Funding

Exploratory Topics

The study team also asked **exploratory** questions around the following topics:

- investigative genetic genealogy (IGG)
- rapid DNA technologies
- expanded collection of DNA from detainees for CODIS

In 2020, at the time of the event, these strategies to assist identification of missing migrants were largely theoretical. At the time of writing in 2022, each of these strategies has played a role in identifications.

The Forum discussion on these topics centered around anticipated challenges if IGG and rapid DNA were to be widely implemented for DNA identification of missing migrants, including that rapid DNA would be ineffective for UHR samples and IGG would be ineffective in Latin populations, high cost of both, and privacy and timeline concerns for IGG. There also were concerns around inadequate consent processes for detainee DNA collection and inadequate funding for the CODIS policy.

Potential challenges that emerged in response to these exploratory questions were not a primary focus in the post-Forum analysis since we did not want to introduce any topic explanations to the process, and we could not assume that all stakeholders were equally informed on these three strategies. However, a couple of solutions that were proposed by stakeholders during discussion that involve rapid DNA or IGG were included.

Topic Categories

In the following section, we summarize the challenges and solutions that emerged from the Forums, grouped by the six topics. **Table 3** details the top two priorities among the stakeholders overall and within the **Franklin** and **Jeffreys** Forums according to stakeholder rankings in the post-Forum questionnaire. **Tables 4-8** and **10** summarize the findings within each topic, and key comments extracted from the Forum transcripts and the post-Forum questionnaire demonstrate the nuances of the simplified challenge and solution statements. Quotations do not always fit neatly within one category as stakeholders weave together different challenges as they talk.

Table 3. Top two priority rankings among challenges emerging in Stakeholder Forums

CATEGORY	OVERALL	FRANKLIN	JEFFREYS
Infrastructure	Not enough MEs to serve border deaths	National government policies restrict DNA data sharing	Not enough MP reports are filed with LE
	National government policies restrict DNA data sharing	Not enough MEs to serve border deaths	Inadequate use of NamUs
UHR recovery/handling	UHR are buried/cremated without DNA collection	UHR are buried/cremated without DNA collection	UHR are not sent to MEs
	UHR are not sent to MEs	UHR are not sent to MEs	UHR are buried/cremated without DNA collection
FRS collection/handling	Difficulties in collecting FRS from families outside the U.S.	Difficulties in collecting FRS from families outside the U.S.	Not enough FRS collection
	Not enough FRS collection	Families distrust LE	Difficulties in collecting FRS from families outside the U.S.
DNA data sharing	DNA data are not shared between government agencies across borders	DNA data are not shared between government agencies across borders	DNA data are not shared between government agencies across borders
	Fragmentation of FRS and UHR DNA data	Fragmentation of FRS and UHR DNA data	Fragmentation of FRS and UHR DNA data
Education/communication	Long turn-around times for matches	Education needed for Justices of the Peace on processes for DNA identifications	Long turn-around times for matches
	Inadequate communication with families while investigations are ongoing	Inadequate communication with families while investigations are ongoing	Inadequate communication with families while investigations are ongoing
Funding	Not enough funding for UHR recoveries	Not enough funding for UHR recoveries	Not enough funding for DNA laboratories
	Not enough funding for UHR processing	Not enough funding for FRS collection	Not enough funding for UHR recoveries

Infrastructure

We use the term “infrastructure” to describe the established resources, policies, and practices that are used in the process of identifying transnational missing persons. By resources we mean the personnel, buildings, and equipment that are used in the identification process. **Funding** is discussed separately in a below section. Resources, policies, and practices might exist across stakeholder groups and geographic regions, or they might be specific to an NGO, LE agency, or location. Stakeholder discussion tended to cluster around inadequacies in current infrastructure and counter-productive or inefficient aspects of how things are currently done. A number of personnel-related challenges that came up across Forum discussions focused on inadequate numbers of professionals in key fields to meet needs for processing MP and UHR cases. Workplace practices that directly or indirectly affect identifications were raised, such as high turnover of staff in key roles and prioritization of other types of casework ahead of MP or UHR cases. National and local policies that restrict DNA data sharing were also highlighted as barriers to identification; **DNA Data Sharing** is also discussed in a separate section below. Finally, practices around MP reporting that hinder identifications were raised by stakeholders. **Table 4** details the specific infrastructure challenges extracted from the Forum discussions in order of the priority given to them by stakeholders in the post-Forum questionnaire. Solutions related to infrastructure that were extracted from the Forum discussions are also listed, ordered by the study team. Priorities, challenges, solutions, and post-Forum questionnaire comments on solution viability are discussed in detail below.

Table 4. Infrastructure challenges, priorities, and solutions

Priority	Challenges
1	Not enough medical examiners to serve the border deaths
2	National government policies restrict DNA data sharing
3	Not enough missing persons reports are filed with law enforcement
4	State and/or local policies restrict DNA data sharing
5	Inadequate use of NamUs
6	Law enforcement agencies refuse to take missing persons reports
7	Inadequate workforce for DNA laboratories
8	Inadequate information provided on missing persons reports
9	Laboratories prioritize other casework ahead of missing persons
10	High turnover in government, NGO, and agency workforces
Solutions	
	Certain regions, states, NGOs, and LE agencies can serve as good models
	Develop a complete manifest of missing migrants
	Cooperate with public to investigate missing persons
	LE agencies should take any missing persons reports
	Develop information packet for high turnover agencies
	Guidelines for IGG could be developed
	Formal processes for detainee matches can be developed
	Migrants could pre-emptively bank DNA
	Rapid DNA could help with UHR and FRS leads
	Hire more laboratory technicians

Infrastructure priorities

The two stakeholder groups were not aligned in ranking the priorities of infrastructure challenges (see **Figure 4**). The **Jeffreys** group identified as the primary challenges the lack of missing persons reports filed with law enforcement and inadequate use of NamUs. The **Franklin** group identified as the primary challenges the restrictive national government policies for DNA data sharing and the lack of medical examiners to serve border deaths.

PRIORITIES: INFRASTRUCTURE	OVERALL	FRANKLIN	JEFFREYS
Not enough medical examiners to serve the border deaths	1	2	4
National government policies restrict DNA data sharing	2	1	8
Not enough missing persons reports are filed with law enforcement	3	4	1
State and/or local policies restrict DNA data sharing	4	3	5
Inadequate use of NamUs	5	7	2
Law enforcement agencies refuse to take missing persons reports	6	6	6
Inadequate workforce for DNA laboratories	7	8	3
Inadequate information provided on missing persons reports	8	10	7
Laboratories prioritize other casework ahead of missing persons	9	5	9
High turnover in government, NGO and agency workforces	10	9	10

Figure 4. Infrastructure priorities. Stated infrastructure challenges emerging from the conversations during the Stakeholder Forums were grouped into categories by the study team. Stakeholders were asked to rank them from most to least important in the post-Forum questionnaire. *Overall priorities colored dark green – highest ranked priority; light green – lowest ranked priority*

Friction around the challenge statements for infrastructure were clear in stakeholder critiques of the challenge statements.

Two stakeholders (both *Franklin*) critiqued the challenge statement, “Laboratories prioritize other casework ahead of missing persons.” Both noted that most laboratories in the United States do not do DNA testing for missing persons. One attributed this to CODIS and training requirements and a “lack of pathways” for most private laboratories to enter missing persons data into CODIS. This stakeholder emphasized that a decrease in federal funding and a lack of state and local funding was the main culprit in slow processing of missing persons casework, not lab priorities (*Franklin*).

One stakeholder attributed “Not enough medical examiners to serve border deaths” to a national shortage of medical examiners combined with the need for medical examiners in remote areas (*Franklin*).

Two stakeholders critiqued challenge statements on missing persons reporting. The statement “Not enough missing persons reports are filed with law enforcement” was critiqued for placing the responsibility on families. A reformulated statement might read, “Requirements to file with law enforcement prevent families from reporting missing persons” (*Franklin*). “Inadequate use of NamUS” was attributed to policy restrictions on who can enter cases and on entering cases where the family is outside of the United States (*Franklin*).

Infrastructure challenges

Not enough medical examiners to serve the border deaths

Stakeholders highlighted workforce-related challenges. One stakeholder highlighted the effect of a lack of MEs in their state:

“Who is going to spend that money for a medical examiner's office if you don't have to? And so, you are going to see now over the next 10 years, none of the border towns are ever going to make the medical examiner [meet the state-mandated population requirement to have a medical examiner] [...] Yeah, so I think it's going to be an issue in [state redacted] because we just don't have enough medical examiner's offices.” – *Jeffreys*

National government policies restrict DNA data sharing

Stakeholders expressed on their notecards the policy roadblocks to information and DNA data sharing, including, “federal government obstruction” (*Jeffreys*) and a “bureaucracy of parts” (*Franklin*).

Not enough missing persons reports are filed with law enforcement

This challenge, distinct from the one below, “Law enforcement agencies refuse to take missing persons reports” relates to the lack of reporting of missing persons; whereas the one below highlights the refusal of law enforcement in taking missing persons’ reports. Two stakeholders noted on notecards the lack of information about the missing person, and the lack of antemortem data or interview data.

State and/or local policies restrict DNA data sharing

A medicolegal expert commented on their experience with barriers to submitting DNA samples from UHR.

“We couldn't send anything for DNA for three years because we weren't law enforcement, yet no law enforcement was sending anything. So we had all these bones and muscle and stuff we wanted to send, but we weren't allowed to send it. And even now, when we're collecting all the information, we fill out all the paperwork and we send it for DNA, it goes back to the law enforcement agency. And then two months later, we are looking for it and find out they've had it for two months. And then we ask for it.” – *Jeffreys*

Inadequate use of NamUs

In the Forum discussion of realistic solutions, one Jeffreys participant noted the inadequate use of Namus.

“What I say with NamUs is that it's very helpful but it took us, again, a long time to get on because we're not law enforcement. So we had to try to sneak on with [redacted name] at [redacted county], [they] wouldn't do it. So I'm on it, our group was putting everything in, but we had to go through one of our judges who was willing to be the person, [redacted name], but unfortunately [redacted name] is like, ‘Well, I’m not getting this stuff.’ [...] So I don't know how NamUs would let project people get on, I mean it was a pain. It took us over a year to figure out how to get on and then someone actually commented and said use a judge and find a judge to do it. Three said no, one said yes.” – *Jeffreys*

Law enforcement agencies refuse to take missing persons reports

One stakeholder noted the troubles with reporting missing persons to law enforcement.

“In terms of communicating with the families I think that also can very much be impacted by the laws that are present. What's required, again can be mandated in terms of reporting requirements, in terms of talking to them. To speak for [state redacted], they're required to accept the missing person report anywhere in the state. It doesn't have to be where the person went missing, where the person was from. There's no waiting period, and those things can be mandated as well, in terms of dealing with families so... family shows up, it doesn't matter where they're from or where their loved one went missing. Law enforcement is required to take the report.” – *Franklin*

Inadequate workforce for DNA laboratories

One stakeholder highlighted the challenges of quick staff turnover.

“Part of it is at least, I don't know about two years, coming from a bureaucratic agency, two years is like a blink, you write a memo. And I'm sure the state agencies as well, it's like a black hole of waiting for a signature [...]” – *Jeffreys*

Inadequate information provided on missing persons reports

Practices around missing persons reports were highlighted by stakeholders as a burden.

“In thinking about gaps, one of the things that I've seen is, occasionally, DNA will be collected from a family member by a medical legal agency for comparison of a specific unidentified decedent case, and even that DNA may go into CODIS, or it may go into a separate database, but often there is not a missing person report, or a missing person entry. And so if that person isn't a match to that decedent, we could be missing other comparisons because we don't have a record of the missing person case. And obviously, if the DNA is in CODIS or in another system, it could effectively match to a decedent there. But I think in a lot of these cases, there may have been fingerprints or dental records or even circumstantial information that would have saved those families from waiting months, if not years, for a match. So we are seeing a lot of missing cases not going into any systems.” – *Jeffreys*

Laboratories prioritize other casework ahead of missing persons

A comment from a stakeholder in law enforcement highlighted how the actions of a single official can prevent identifications.

“When I make a recovery and it goes to the medical examiner, I never hear anything back from them. There is no word back, there is nothing on NamUs, typically, that shows up that I can find any relation to that recovery. When I said yesterday that it's a black hole, for me, literally, it's a black hole. It just goes away and nothing comes back, so I'd like to see that aspect of it change [...]” – *Jeffreys*

High turnover in government, NGO and agency workforces

This challenge was noted on two notecards from two anthropology experts, “turn over in offices and information lost” (*Franklin*) and “consular turnover” (*Franklin*)

An anthropologist noted the challenge of keeping rotating workforces apprised on the processes of DNA sampling for FRS.

“Families do come forward. I've sat in sheriff's offices where families came to report someone missing with a box of kits to take DNA samples and family willing to do what they need to do and watched people not even write down the information that they were given on those that are missing and it's a lack of knowing how to take that information, what to do with that information, and how to even do a DNA swab. There's not enough education to prepare offices. Sheriff's offices are elected officials and those turn up over and so it's not just educating one, it's continual education and that doesn't happen to prepare people to be able to do this kind of work and sometimes they err on the side of not doing it rather than doing it wrong.” – *Franklin*

A federal agency stakeholder noted the same high turnover challenge with the Border Patrol office.

“And like for me, I just took over three weeks ago and in two years, someone is going to take over for me, or maybe less, so how am I going to pass all this information to him so that he is aware of what's out there for [them]?” – *Jeffreys*

Infrastructure solutions

Several of the potential solutions to infrastructure challenges that were introduced by stakeholders during the Forum sessions were tested in the post-Forum questionnaire.

Certain regions, law enforcement agencies, and NGOs can serve as a good model for improving identifications

During the Forums, certain regions, law enforcement agencies, and NGOs were directly proposed as models or referenced as examples of successful uses of resources, policies, or practices for management of migrant identification. Post-Forum, not all survey participants named model regions, LE agencies, or NGOs, and some explicitly stated they did not feel there was a model worth highlighting. Where stakeholders commented on the models they named, they generally highlighted specific features worth emulating; no models were framed as ideal systems overall. Furthermore, there was some acknowledgement that models do not necessarily translate perfectly between regions or agencies with different resources, geography, or policy landscapes. We do not include names of specific regions, countries, states, counties, law enforcement agencies, or NGOs in this report (except for the United States broadly, which was the focus of the Forums), focusing instead on the characteristics called out by stakeholders. Details of specific model regions or organizations named can be made available upon request.

Regions: Countries

Forum participants were asked to suggest which countries might serve as good models for management of migrant identifications. One stakeholder highlighted that no country stood out as a good model, writing “All seem about equal at this point” (*Jeffreys*). The United States was the most frequently named country. One stakeholder wrote, “I honestly don’t know of a country that has a better model and more resources than the U.S.” (*Jeffreys*). Stakeholders also named other countries in North and Central America and Europe. Countries with “established procedures for systematic international sharing of data for MP/UHR” (*Franklin*) were called out as models, as well as a country whose national DNA database “includes humanitarian/non-criminal indices” (*Franklin*).

One stakeholder named U.S. states instead of countries in this category, highlighting the diversity of policies, practices, and resources applicable to missing persons cases even within a single country. This stakeholder (*Franklin*) applauded states that are “self-funding a missing persons DNA program” while recognizing that they still have many “problems” (*Franklin*).

Regions: States and counties

Forum participants were asked to suggest which states or counties might serve as good models for management of migrant identifications. One stakeholder again highlighted that no state or county stood out as a good model, writing “All seem about equal at this point” (*Jeffreys*). Two non-U.S.-Mexico border states (or counties within these states) were named; the remaining three states were border states. Named counties within border states included only counties along the U.S.-Mexico border.

One stakeholder (*Franklin*) highlighted that the “logistics” of a model state might not work in other states. Stakeholders highlighted states with legislation mandating the use of NamUs and other systems, as well as legislation mandating that law enforcement take missing persons reports.

NGOs

Forum participants also were asked to suggest which NGOs might serve as good models for management of migrant identifications. Stakeholders named U.S.-based NGOs as well as foreign and international NGOs. Only one stakeholder (*Jeffreys*) offered any comment or explanation, highlighting the importance of formal, ongoing collaborations between NGOs and law enforcement agencies “to ensure that missing person reports are taken and to support families of missing migrants with resources needed to resolve cases” (*Jeffreys*).

Law enforcement agencies

Forum participants also were asked to suggest which law enforcement agencies might serve as good models for management of migrant identifications. One stakeholder felt that there were no good models among law enforcement agencies, writing, “in my experience, none have been innovative in reaching families and helping them feel safe and respected” (*Franklin*). Specific agencies named included forensic laboratories, medical examiners’ offices, departments of justice, local law enforcement offices, and national agencies. Stakeholders also named states, specifying two U.S.-Mexico border states and nine non-border states. Two stakeholders (*Jeffreys*) and (*Jeffreys*) praised the collaborative efforts of local law enforcement agencies, either in general

or specifically with NGOs. One stakeholder (Jeffreys) highlighted states that mandate the use of NAMUS or other systems missing or unidentified persons cases.

Develop a complete manifest of missing migrants

A medicolegal expert pointed out the parallels between the crisis in migrant deaths at the U.S. border and other mass disasters, with the notable difference that there is no manifest of the missing for border deaths.

“For the last 25 years, since Operation Gatekeeper and other ones started the uptick in deaths in the hinterlands or the borderlands, that has been described by several people as a mass disaster in slow motion. There's [sic] some useful parallels to mass disasters, but what most mass disasters have that we don't is a manifest. [...] Maybe NamUs MP would consider a check box that say[s] thought to be a UBC [unidentified border crosser] or a foreign national or fallen in the borderlands. If we could just get those names in there, of all the missing, and some dude had to vet that to make sure these people are still missing, then we could come closer to having a manifest. And that would be relatively cheap to do.” – Jeffreys

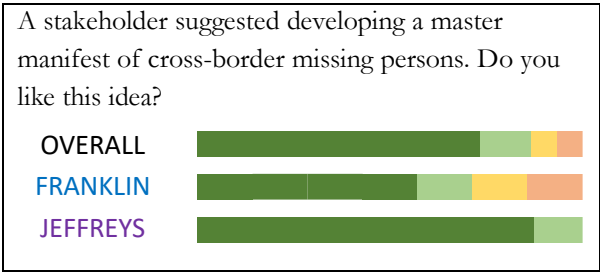


Figure 5a. Post-Forum responses to solution proposed by a stakeholder during the Stakeholder Forum. *dark green – like a great deal; light green – like somewhat; yellow – neutral; light orange – dislike somewhat; dark orange – dislike a great deal*

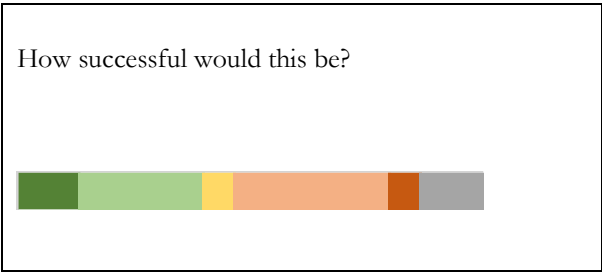


Figure 5b. Affirmative responses. *dark green – extremely easy; light green – easy; yellow – neutral; light orange – difficult; dark orange – extremely difficult; gray – not asked or not answered*

When asked if they liked the idea (see **Figure 5a**), 13/15 stakeholders liked the idea a great deal or somewhat. This suggests a high level of consensus overall and between the Franklin and Jeffreys groups. It is of note that the two respondents that were neutral or did not like the idea were both in the Franklin group. While the idea was met with approval from a majority of respondents, stakeholders’ evaluation of the difficulty of implementing a master manifest was split (see **Figure 5b**). Of the 13 who responded to the follow up question, four thought that it would be somewhat easy and three extremely easy, while five thought it would be somewhat difficult and one extremely difficult.

When asked to comment on how a complete manifest of missing migrants might be achieved, the possibility of **building on NamUs** was a common theme. As one stakeholder wrote, “I think NamUs has to be the starting point” (Jeffreys). Reflecting this sentiment, two stakeholders proposed creating a **special section or designation within NamUs** (Franklin and Jeffreys). One of the two recommended a special section for cases thought to be missing migrants (Franklin), and a third stakeholder noted, “many of the families know if their loved one went missing at the border” (Jeffreys). The second (Jeffreys) recommended the reverse: NamUs should have a “probable American Citizen” (“probable AMCIT”) designation for unidentified human remains thought by medicolegal professionals to be American Citizens. Cases not flagged as probable American citizens by medicolegal professionals would be “considered as possible foreign nationals” (Jeffreys).

Further stakeholders focused on **the need for practices and policies surrounding NamUs** to use it to create a manifest of missing migrants. One stakeholder felt that using the technology of NamUs to create a manifest would be easy, but “the challenge would be in **vetting cases** to ensure that they involve legitimate missing person investigations to protect the privacy and safety of those reported missing to NamUs” (Jeffreys). Another aspect of vetting cases would be eliminating **duplicate reports**, which could arise as families, NGOs, and other groups all report the same missing person. To address these challenges, this stakeholder suggests that missing persons reports contain as much identifying information as possible (e.g., full name, maiden name, date of birth) and that dedicated staff identify and merge duplicate cases. Furthermore, each case would need to have a point of contact at a LE or government agency for validation and to receive tips and results of forensic comparisons.

The importance of **a central repository for cases**, whether NamUs or another system, and **the need for communication and collaboration between stakeholders at a national and international level to meet data sharing and management needs** also emerged as themes. One stakeholder stated that a single database would improve the efficiency of searches (Jeffreys). Another supported mandatory submission of cases to NamUs by all agencies to “close communication gaps” (Jeffreys). There were calls for “an international mechanism to collaborate, collect/exchange information (with data protection agreements in place)” (Franklin) or for “an international MP case information sharing symposium and potentially offer free NamUs software to those countries that agree to participate in protected information sharing” (Jeffreys).

Three stakeholders pointed out that **agreement from key parties** was needed to enable the creation of a manifest. One stakeholder noted that “while it could (and should) be easy it will prove to be ‘somewhat difficult’ due to insufficient collaboration between the stakeholders” (Franklin). Another highlighted that collaboration would have to be towards a common humanitarian purpose, excluding any law enforcement purposes: “You would need key stakeholders (both governmental and non-governmental) to agree to pursue it for **the sole humanitarian purpose of identification**”

(*Franklin*). A key aspect of collaboration, one stakeholder wrote, is “**regular and systematic cross-referencing of data**” (*Franklin*) to create a manifest.

Cooperate with public to investigate missing or unidentified persons

A medicolegal expert commented on the importance of community engagement for investigating missing persons cases, encouraging cooperation with the civil public.

“And right now, we even search Facebook. I am in league with a couple of Facebook sites, and they will send me a text when someone is missing. And, heck, we've IDed three people that way within a couple of days because we put them on NamUs, they see it on NamUs, then they get back to me and say I think we have a match, and three times now, we have had a match through just going out to the web.” –*Jeffreys*

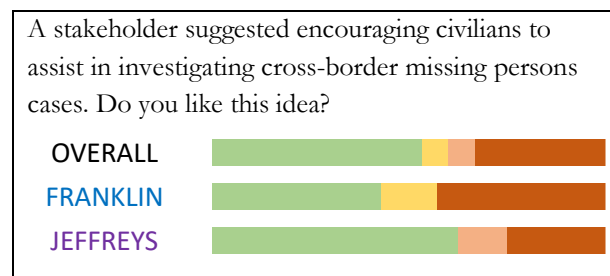


Figure 6a. Post-Forum responses to solution proposed by a stakeholder during the Stakeholder Forum. *dark green – like a great deal; light green – like somewhat; yellow – neutral; light orange – dislike somewhat; dark orange – dislike a great deal*

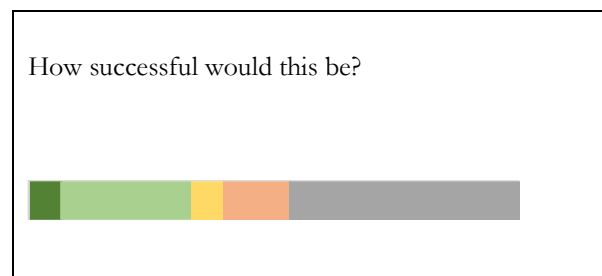


Figure 6b. Affirmative responses. *dark green – extremely easy; light green – easy; yellow – neutral; light orange – difficult; dark orange – extremely difficult; gray – not asked or not answered*

When asked Post-Forum whether they liked the idea of civilians assisting in cross-border MP investigations (see **Figure 6a**), half of respondents (8/15) liked the idea somewhat. One respondent neither liked nor disliked the idea and one disliked the idea somewhat. While no stakeholders liked the idea a great deal, 5/15 disliked it a great deal. When asked how successful this would be (see **Figure 6b**), only half of the stakeholders responded (8/15). Most (5/8) expressed that it would be somewhat or extremely easy for civilians to assist in cross-border missing persons cases. None thought it would be extremely difficult.

Stakeholders were asked both how this might be achieved and, if they disliked the idea, why they disliked it. Responses to both questions expressed support for and/or opposition to **different types of civilian involvement**. When asked how civilian assistance in cross-border missing persons cases might be achieved, several stakeholders noted that there is precedent for including **non-law enforcement actors** in cross-border missing persons and UHR investigations. Two noted that NamUs already involves civilians in missing persons investigations (*Franklin* and *Jeffreys*), and one

commented that civilians already provide information that creates investigative leads in fugitive investigations (*Franklin*). Another noted that humanitarian groups who search remote areas have for years helped recover UHR (*Jeffreys*). Although civilians are already assisting in missing persons and UHR cases, noted another stakeholder, “it is uncoordinated” (*Jeffreys*).

Few stakeholders expressed complete opposition to encouraging further civilian involvement in UHR and missing persons investigations. Most expressed support for **limited civilian involvement in UHR and/or MP investigations**. In assessing the benefits and risks of involving civilians in investigations, stakeholders distinguished between **civilian participation** in physical searches for UHR vs. information provision in investigations and missing persons investigations as **criminal investigations** vs. missing persons investigations as a **humanitarian effort**.

There was overall more support for civilians participating in missing persons investigations than for civilians participating in UHR recovery, but with clearly defined **roles, limits, and professional support and training**. Multiple stakeholders highlighted the value of the public’s role in information provision: one expressed support for civilian involvement in missing persons cases as modeled by NamUs (*Jeffreys*), and another noted that friends and family of a missing person “have greater access to information directly relevant to the MP such as social media and personal communication” (*Franklin*). Others acknowledged the value civilians contribute, but with caveats: while they were against the involvement of civilians in sensitive aspects of criminal investigations, “I appreciate civilian involvement in searching for potential matches between publicly-viewable information in systems like NamUs, as well as helping to disseminate information on unsolved cases, in hopes of getting that information in front of the right family member who will call in to report a tip” (*Jeffreys*).

Concern over civilian involvement in potential criminal investigations was strongly expressed as a limiting factor for some stakeholders. The same stakeholder who was in favor of civilians working with publicly available information (*Jeffreys*) also perceived a high likelihood that missing migrant cases will involve criminal investigations of homicide, or “at the very least, I believe manslaughter charges should be pursued against the traffickers who leave individuals in remote areas with no resources to survive.” They continued, “because these cases can involve sensitive criminal justice information [...], **there are certain areas that are simply not appropriate for civilians to be involved in**” (*Jeffreys*). Another stakeholder did not see a place for civilians in MP investigations: “Missing persons investigations should be the responsibility of governments, specifically law enforcement” because “Law enforcement is specially trained and has the resources to conduct investigations in such a manner as to not endanger the integrity of the investigation” (*Franklin*). The **potential for private citizens to hinder investigations** was expressed by several other stakeholders: one noted that agencies’ policies restricting communication with civilians about open cases “further hinders our current issues in communication” (*Jeffreys*). Another felt that while

civilians might assist in recoveries, their lack of education and training would hinder investigations and **take control of identification processes away from professionals** (*Franklin*).

Several stakeholders suggested **procedures or training that would limit the risks of civilian involvement in MP investigations**. One stakeholder felt that any civilian involved in cross-border missing persons cases should have **prior training and expertise**, such as a retired police officer, as well as **special training** on working with families and the cultural and political complexities of missing migrant cases (*Jeffreys*). Another stakeholder noted that information provided by civilians needs to be verified (*Franklin*).

Stakeholders expressed similar concerns about civilian involvement in recovery and/or investigation of UHR. Some felt that the risks of civilian participation in investigations were greater than the risks of civilian participation in recovery of UHR. Others felt that while the role of providing information to investigators was appropriate for civilians, **UHR recovery was too dangerous to allow civilian participation**. One stakeholder emphasized that it would be inappropriate for civilians to have any involvement in UHR investigations, which “are, by definition, medicolegal death investigations” (*Franklin*). Training to mitigate risks was also recommended by one stakeholder who stipulated that civilians searching for UHR have training on search and recovery methods (*Jeffreys*).

One stakeholder gave special attention to the potential role of civilians in the collection of DNA. They felt that **civilians should not be involved in DNA sample collection** due to the sensitivity of maintaining chain of custody: “DNA samples need to be collected by criminal justice personnel to ensure identifications can be confirmed and a proper chain of custody has been established on evidence so that the evidence can later be admitted in court. If NGOs are collecting DNA samples and making identifications through private laboratories without law enforcement involvement, there are none of the typical ‘checks and balances’ in place to ensure identifications are based on peer-reviewed genetic comparisons, and that charges are pursued against those who should be held accountable for these crimes against persons” (*Jeffreys*).

LE agencies should take any missing persons reports

All stakeholders thought that law enforcement should be encouraged to accept missing persons reports from outside of their jurisdictions. More than half thought this practice should definitely be encouraged ($N=9$), while the remainder thought that it probably should be encouraged (see **Figure 7**). One stakeholder wrote, “These investigations should be collaborative. Where the person went missing, where the family resides, where the missing persons may be based on travel, etc. All LEA [*law enforcement agencies*] should be collaborative and available to help those missing a loved one and it shouldn't be about open unresolved case rates, but willingness to take cases and advocating for interagency resources” (*Jeffreys*).

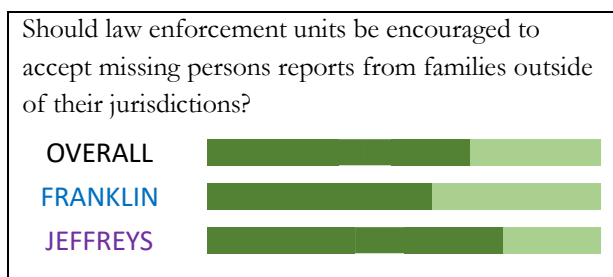


Figure 7. Post-Forum responses to solution proposed by a stakeholder during the Stakeholder Forum. *dark green – definitely yes; light green – probably yes; yellow – neutral; light orange – probably no; dark orange – definitely no*

When asked how this could be achieved (see **Figure 7**), stakeholders did provide policy suggestions, but often emphasis was placed on the need for **collaboration and communication**. Emphasis was placed on collaboration between agencies in MP investigations, including between LE agencies in jurisdictions relevant to the case and between LE, MEs, consulates, and NGOs. Collaboration was multilevel, necessary at a jurisdictional, regional, national, and even, by one stakeholder (*Franklin*), international level. One stakeholder noted, “We have the online tools so that MP report collection should not have to be limited to local disappearances” (*Franklin*), but **reporting LE agencies are not taking advantage of NamUs to work with other relevant jurisdictions**. Two stakeholders (both *Jeffreys*) noted that “simple follow-through” and “communication” were “key” and improved “testing and results.”

Stakeholders highlighted **barriers to collaboration and communication**. **Inconsistent federal, state, and local laws; lack of funding; and lack of a central agency to coordinate MP investigations** were called out. One stakeholder (*Franklin*) noted that the “biggest hurdle” to LE agencies accepting MP reports is that **the agency that takes the report is expected to be the investigating agency**. Another stakeholder noted the effect on families of inconsistent acceptance of MP reports: “It is important that the opportunity is not lost to capture information from families because of confusion on where the report should be made” (*Franklin*).

Several stakeholders suggested **improvements to data collection and sharing practices and systems to facilitate collaboration**. One stakeholder (*Franklin*) suggested a category of reporting that allows LE to receive and publish a report without becoming the investigating agency. Another stakeholder highlighted the importance of **including suspected location of disappearance and the families’ location** to “assist in the investigations focus” and stipulated that “The reporting system should allow for cross-referencing to remove duplicate reports for the same individual while still ensuring that the information is captured and available for comparison against all states’ UHR records” (*Franklin*).

Some felt that **changes in policy** are the only way to ensure universal acceptance of MP reports. One stakeholder noted, “I think this can only be accomplished by individual state laws, or a national mandate” (Jeffreys). They highlighted the need for “language that closes the loophole on law enforcement taking missing person reports, even if the individual did not go missing from a jurisdiction within the state” (Jeffreys).

Others highlighted the necessity of **designated funding and/or a designated national agency for MP reporting**. One stakeholder emphasized the need for federal funding to enable acceptance of missing persons reports and DNA samples (Jeffreys). Two stakeholders suggested the creation of a national agency or funding source; one stakeholder (Jeffreys) noted the potential of a “national option” to aid collaboration and advocacy for interagency resources, while the other called for “a national, federally-funded missing persons agency focused on the humanitarian identification of missing/unidentified persons” (Franklin).

Develop information packet for high turnover agencies

During discussions of the need for agency stakeholder training due to the high turnover rate in key positions, a database expert commented on the usefulness of a set of training materials.

“I think that you're not going to get policy changed, but you could get, certainly, a publication in the lane of training and information. That you could get a best practices on how to investigate or report or process missing migrant unidentified cases from like a resource timely perspective.” – Jeffreys

Guidelines for IGG could be developed

In discussions about the potential for IGG to resolve missing migrant cases, some of the stakeholders expressed hope, while others expressed caution. For the most part, stakeholders agreed that guidelines would be necessary to accompany implementation of IGG in missing migrant investigations.

“I just want to be on the record that I think it needs policy. I felt the need to say that I do think there is a risk of harm. Genetic genealogy is the newer version, to me, of what going back over a decade, people remember as familial searching. And the nation was in outrage, and human rights, and people are going to be banging on my door looking for the cousin that committed the homicide.” – Jeffreys

The discussion on IGG was exploratory in 2020, so not included in our post-Forum research (see **Overview**, above).

Formal processes for detainee matches can be developed

While this solution was not tested in the post-Forum questionnaire, it was clear that attitudes differed between the [Jeffreys](#) and [Franklin](#) groups on the utility of the detainee index of CODIS to identify deceased migrants. A medicolegal expert discussed the need for a formal process to correct for errors in names of people providing DNA data for CODIS since so many detainees will give a false identity at booking.

“If we're using samples where they already crossed, say a week ago, which we do see that too. And then the next week, they drown in the Rio Grande River. The problem with that is about 25% of those people are lying to Border Patrol about who they are. [...] So, I don't know who's going to be safeguarding that this is really that person. You'd have to check with the consulate like we do and have the consulate check the address to make sure it's not an empty lot and then have the consulate pull the birth certificate to make sure that's him, that's all the steps we go through to confirm.” – [Jeffreys](#)

Migrants could pre-emptively bank DNA

A database expert suggested the idea of pre-emptive banking of DNA samples prior to migration, which would provide a reference sample for future identifications should a migrant die during their journey.

“In the world of being solution oriented, I am wondering what the thoughts are about looking at the issue from the preventative side. [...] I know there have been some studies of like research projects of high risk [people]. So, runaways that have voluntarily given their DNA samples so if they became prostitutes or they had drug addiction issues, and they died, they could be identifiable. So I'm not saying that this is a good idea, but in the event that somebody dies in the southern border and we actually have their DNA, regardless of whether it comes back as an alias, if there was a preventative outreach campaign to these other countries where maybe their parents... You know like, ‘Hey mom, I'm running, but hold this little envelope so if I'm missing, you can send it to...’ [...] [the] morgue, and then you'd have a direct DNA sample from mom [...]” – [Jeffreys](#)

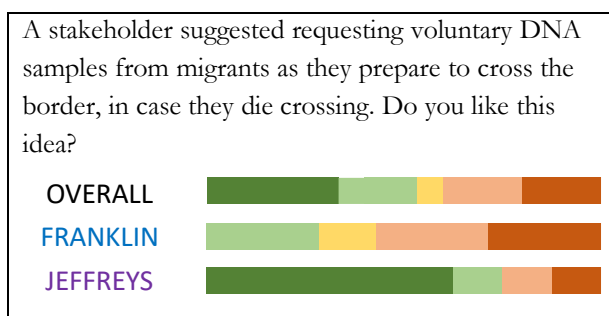


Figure 8a. Post-Forum responses to solution proposed by a stakeholder during the Stakeholder Forum. *dark green – like a great deal; light green – like somewhat; yellow – neutral; light orange – dislike somewhat; dark orange – dislike a great deal*

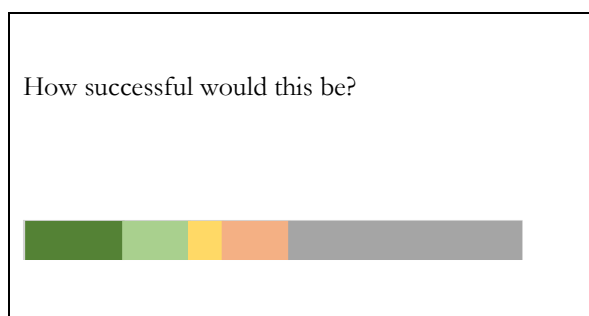


Figure 8b. Affirmative responses. *dark green – extremely easy; light green – easy; yellow – neutral; light orange – difficult; dark orange – extremely difficult; gray – not asked or not answered*

When asked if they liked the idea (see **Figure 8a**), half of stakeholders (8/15) liked the idea somewhat or a great deal. All those who liked the idea a great deal belonged to the **Jeffreys** group. A little less than half (6/15) disliked the idea somewhat or a great deal. A majority of the **Franklin** group disliked the idea, whereas a majority of the **Jeffreys** group liked the idea. When asked how successful this would be (see **Figure 8b**), more than half of respondents (5/8) expressed that this would be somewhat or extremely easy; 2/8 felt it would be somewhat difficult. None felt it would be extremely difficult.

When asked how to achieve this, **stakeholders acknowledged the potential benefit of preemptive DNA collection but brought up a robust group of concerns**. As one stakeholder wrote, “Having an antemortem reference sample would be an excellent source of DNA to identify postmortem samples. However, there would be many challenges [...]” (*Franklin*). Stakeholders who were asked why they did not like the idea highlighted similar concerns; for these stakeholders, “risk/benefit analysis skews heavily towards the risks” (*Franklin*). Another stakeholder simply wrote, “Doesn’t seem realistic, so many challenges to implementing this” (*Franklin*).

One group of stakeholder concerns centered around **migrants’ willingness to provide samples**. One stakeholder felt that **a voluntary program for preemptive submission of DNA samples would increase identifications**, but “If involuntary, I would not support the implementation of such a program” (*Jeffreys*). Another stakeholder seconded this perspective, writing, “Anyone high risk could have their DNA collected and tested in case of disappearance, but it would have to be voluntary (not required or coerced [...])” (*Jeffreys*). Stakeholders who disliked the idea felt it would be ineffective because **migrants would not wish to provide samples**. Three stakeholders felt that migrants were unlikely to be willing to provide DNA samples that could be used by law enforcement. One stakeholder (*Franklin*) noted that migrants’ resistance to providing samples would probably be higher than the alleged resistance to providing family reference samples. Another noted

that it is unlikely that “undocumented border crossers,” many of whom use false IDs, would “voluntarily consent to provide their DNA sample while giving their true identity to law enforcement” (*Jeffreys*).

Stakeholders were also concerned about data protection and privacy. A stakeholder (*Franklin*) wrote that “humanitarian protection of migrants and their families” should be the first consideration of any such program, perhaps, as another stakeholder suggested, by allowing only searches against “the dead or critically unresponsive” (*Jeffreys*). A third stakeholder highlighted the challenges of determining “how and under what circumstances would the sample be transferred to appropriate authorities” and “when would samples/profiles be destroyed” (*Franklin*). Several stakeholders who did not like the idea felt that sufficient data protection was impossible, especially in the case of law enforcement involvement. As one wrote, “**Ethically very problematic** [...] Further criminalizes and surveils an already criminalized population” (*Franklin*).

Identifying a trusted party to collect and manage DNA data was also identified as a challenge by multiple stakeholders. As one stakeholder stated, it is a “**question of trust**” (*Jeffreys*). Whatever agency is chosen to collect and manage data, wrote another stakeholder, “must be trusted by migrants and other stakeholders (including governmental/authorities)” (*Franklin*). Some stakeholders who did not like the idea of a preemptive DNA sample program felt that law enforcement should not be involved in sample collection and storage (*Jeffreys*). Another stakeholder (*Jeffreys*) who did not like the idea highlighted the logistical challenges of both NGO and LE involvement: while NGO-collected and stored samples would not meet CODIS requirements, migrants are unlikely to give DNA to LE.

Stakeholders also discussed **logistical needs and challenges** to address in implementing a preemptive DNA collection program. Stakeholders in both sets of answers highlighted **the need for funding**; one stakeholder who did not like the idea noted, “FRS collection kits cost over \$5 each, and because only a fraction of undocumented border crosser cases result in the need for DNA identifications, a significant amount of resources would be expended on collecting samples that were never used” (*Jeffreys*). Stakeholders in both sets of answers also highlighted **the challenge of maintaining and demonstrating chain of custody for samples**. Further challenges included determining how identity would be verified (including the challenge posed by use of aliases by migrants), how to cover a large geographical area to collect samples, and where physical samples would be stored. Only one stakeholder made concrete suggestions for implementation, stating that outreach would be needed to inform migrants “of dangers of crossing and benefits of them providing DNA” (*Jeffreys*). They proposed that DNA collection sites be set up at migrant shelter camps in coordination with consulates and that it be mandatory for all samples to be uploaded to CODIS.

Stakeholders in both sets of answers proposed alternatives to preemptive DNA collection to prevent disappearances in light of the challenges. These included fingerprints and/or RFID chips carried in belongings or worn on wrist or ankle bands by the migrant or the creation of an identification card for migrants linked to an agency that would hold identifying information and information of family members willing to provide FRS.

Rapid DNA could help with UHR and FRS leads

A humanitarian organization representative noted the utility of rapid DNA in identification cases where the specimen are single-source and not degraded.

“I think Rapid DNA instrumentation could be huge boon for identification purposes in particular where the remains are not very compromised.” – *Franklin*

Hire more laboratory technicians

In both the *Jeffreys* and *Franklin* groups, stakeholders suggested that hiring more DNA laboratory technicians and training DNA laboratory technicians would help to alleviate the backlogs.

“We cut our DNA identification in half by hiring competent technicians. It's less work for us but quicker identifications for us.” – *Jeffreys*

“Well you certainly would speed up the process in terms of genetic profiles coming out faster for a much shorter period of waiting time. [...] in terms of qualified technicians and analysts, maybe more training. Create more training for the genetic analysis in terms of speeding up that process.” – *Franklin*

UHR Recovery and Processing

The term “UHR recovery” encompasses discovering, collecting, and transporting unidentified, deceased persons, and also includes exhumation, where UHR are not properly processed, and the final disposition of remains, that is, the final resting place of the remains after processing. The term “UHR processing” encompasses the examination of human remains at a medicolegal or forensic anthropology facility, collection of DNA or other samples, recording and/or storage of personal possessions, recording of identifying characteristics, and upload of these data into relevant systems. The Forums discussion and our analysis does not encompass post-identification steps such as the repatriation of remains. While “UHR recovery and processing” encompasses all the steps from discovery of UHR through to final disposition, not all UHR of migrants will go through each step and in practice may never be recovered or properly processed. A large part of stakeholder discussion of challenges in UHR recovery and processing focused on instances where these steps go awry, making identification unlikely or impossible. This includes practices that prevent collection of DNA samples from UHR, including insufficient recovery of UHR along the border, failure to send UHR to medical examiners, failure to conduct complete anthropological investigations of UHR, and burial or cremation of UHR without DNA collection. Stakeholders also discussed circumstances that complicate UHR recovery and processing, such as difficult border terrain that hinders recoveries and poor condition of remains that makes it difficult to obtain DNA from samples. Finally, stakeholders discussed challenges that stem from the uncertainty of the cause and manner of death of UHR at the border: this uncertainty creates tension between the need for humanitarian aid for the ongoing mass disaster at the border and the possibility that UHR are homicide victims, which calls for involvement of LE. **Table 5** details the specific UHR recovery and processing challenges extracted from the Forum discussions in order of the priority given to them by stakeholders in the post-Forum questionnaire. Solutions related to UHR recovery and processing that were extracted from the Forum discussions are also listed, order determined by the study team. Priorities, challenges, solutions, and post-Forum questionnaire comments on solution viability are discussed in detail below.

Table 5. UHR recovery challenges, priorities and solutions

Priority	Challenges
1	UHR are buried and/or cremated without DNA collection
2	UHR are not sent to medical examiners
3	UHR are not given complete anthropological investigations
4	Not enough UHR recoveries along the border
5	UHR could be homicide victims so should be handled only by law enforcement
6	UHR specimen are challenged, so it is difficult to obtain high-quality DNA
Solutions	
Systematize a UHR recovery program	
Increase exhumations of UHR	
Set standards for UHR processing	
Educate MEs on various ID techniques	
Dedicated UHR storage facilities	

UHR recovery and processing priorities

The two groups of stakeholders were for the most part aligned in the priorities for UHR recovery and processing for DNA (see **Figure 9**), with the top concerns being that UHR might be buried or cremated without DNA collection and that UHR are not sent to medical examiners.

There were contrasting views among three stakeholders around overall Priority 5, “UHR could be homicide victims so should be handled only by law enforcement.” All three commentators disagreed that UHR should only be handled by law enforcement. Two argued that law enforcement should always work together with coroners or medical examiners to conduct medicolegal death investigations on unidentified human remains. One emphasized that just as law enforcement should not handle UHR without an ME or coroner, MEs or coroners should not handle UHR without law enforcement. These two commentators did not speak to the likelihood of UHR being a homicide. The third commenter objected that leaving UHR only to law enforcement excludes NGOs and is a limiting factor as the majority of UHR in this context are not homicides.

PRIORITIES: UHR RECOVERY	OVERALL	FRANKLIN	JEFFREYS
UHR are buried and/or cremated without DNA collection	1	1	2
UHR are not sent to medical examiners	2	2	1
UHR are not given complete anthropological investigations	3	3	3
Not enough UHR recoveries along the border	4	4	4
UHR could be homicide victims so should be handled only by law enforcement	5	5	6
UHR specimen are challenged, so it is difficult to obtain high-quality DNA	6	6	5

Figure 9. UHR handling priorities. Stated challenges with UHR recovery and processing emerging from the conversations during the Stakeholder Forums were grouped into categories, then stakeholders were asked to rank them from most to least important in the post-Forum questionnaire. *priorities colored dark green – highest ranked priority; light green – lowest ranked priority*

UHR recovery challenges

UHR are buried and/or cremated without DNA collection

A medicolegal expert commented on the fact that remains might be cremated once they are identified, and if they are incorrectly or improperly identified, cremation might be the result.

“Because in [state redacted], if you have a name, we can cremate you. Right? So that's who he is, law enforcement, JP, we cremate. Now our county, we don't because we call the judge and the judge is like, ‘You're right. I didn't see the body. I'm going to change it to John Doe.’” – *Jeffreys*

UHR are not sent to medical examiners

A migrant advocated noted the lack of full examinations in some counties in their state.

“[...] [state redacted] does require that DNA be taken on all unidentified remains, but we know that that wasn't the case in some counties and perhaps still isn't the case in some counties, but in particular I wanted to mention [county redacted] where there was a lot of organization and a lot of pressure put on the county to make that happen. To make that county comply with the law that existed and continues to exist.” – *Franklin*

UHR are not given complete anthropological investigations

A stakeholder in the medicolegal or pathologist category highlighted that UHR samples are sent for DNA analysis before other avenues to identification have been exhausted, overloading laboratories.

Medicolegal, pathologist, and anthropology investigators should consider other identification techniques, such as hydration techniques for mummified fingerprints or macro photography of fingerprints.

“A lot of the bodies that we're sending for DNA to get actually fingerprinted and have a fingerprint ID, and so we are kind of overloading our DNA for processing people who have mummified fingerprints.” – *Jeffreys*

Not enough UHR recoveries along the border

A humanitarian organization represented listed two challenges with UHR recoveries on their notecard, “finding bodies” and “access to private property.”

A medicolegal expert projected that there are hundreds more bodies of migrants yet to be recovered.

“Based on the number of missing persons, reports, and with the number recovered identifications, it's clear, [...] there're hundreds of bodies, there're hundreds of skeletons still out there.” – *Jeffreys*

Stakeholders highlighted workforce-related challenges. One stakeholder highlighted the effect of a lack of MEs in their state:

“Financially, we are vast in acreage, but we don't have the tax base to invest in a lot of the technology that will help us to find these other people. I think, not only the vastness of the area, but the financial backing with which to go forward is a major hurdle” – *Jeffreys*

UHR could be homicide victims so should be handled only by law enforcement

A stakeholder noted that UHR that are processed as if they were migrants who died in the migration process are not always actually migrants and/or might be homicides.

“... unidentified remains thought to be [a] migrant, may not always be a migrant. Certainly, there are a lot of homicide investigations involved in these remains.” – *Jeffreys*

In contrast, another stakeholder in the medicolegal or pathologist category stated that concerns that sharing outside of law enforcement will interfere with homicide investigations are disproportionately large. In the speaker's experience, only a small percentage of UHR examined died from firearm injuries, and only a percentage of those were considered homicides. Thus, sharing DNA data outside

of CODIS and law enforcement “Just doesn't feel like a big risk to me for the benefit of potentially identifying more people.” – *Jeffreys*

UHR specimens are challenged, so it is difficult to obtain high-quality DNA

Two of the notecards from *Franklin* participants commented on the degradation of UHR as a challenge: “challenge of degraded DNA – could be improved with earlier collection, decreased post-mortem interval” (*Franklin*) and “technical: human remains exposed to the environment along the border can be difficult to obtain DNA from and are often fragmentary” (*Franklin*).

A humanitarian organization representative noted the limitations of rapid DNA instrumentation for compromised or degraded specimen.

“The current [rapid DNA instrument] supports simultaneous analysis of multiple samples at the same time. Which could include, even remains sample and reference samples and that would be resolved very quickly. It's already being used in disaster victim identification where the remains are fresh. If you have blood that's not a problem to get DNA, bone is maybe going to be a little more challenging.” – *Franklin*

UHR recovery and processing solutions

Several of the potential solutions to UHR recovery and processing challenges that were introduced by stakeholders during the sessions were tested in the post-Forum questionnaire. Here we also include further details of some solutions that were raised in the Forums but not evaluated in the post-Forum questionnaire.

Systematize a UHR recovery program

A medicolegal expert suggested that there be systematic searches to recover remains.

“So, with unlimited resources, you could [...] pay people to safely walk through the desert, in places that Border Patrol doesn't or can't. We have some restrictions in [state redacted], we have a wilderness that motor vehicles are not allowed, so CBP and the Park Rangers have to patrol on horseback. Twice a year, they patrol horseback. So, pie in the sky for sure, but one of the reasons we haven't identified more dead people is we don't have their bodies yet. They're still out there.” – *Jeffreys*

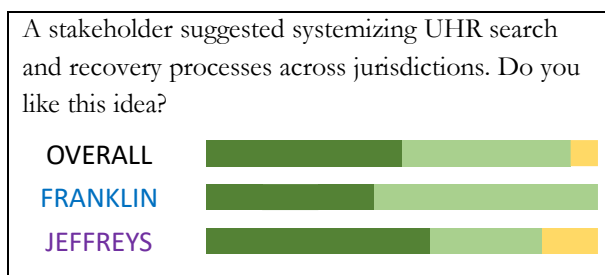


Figure 10a. Post-Forum responses to solution proposed by a stakeholder during the Stakeholder Forum. *dark green – like a great deal; light green – like somewhat; yellow – neutral; light orange – dislike somewhat; dark orange – dislike a great deal*

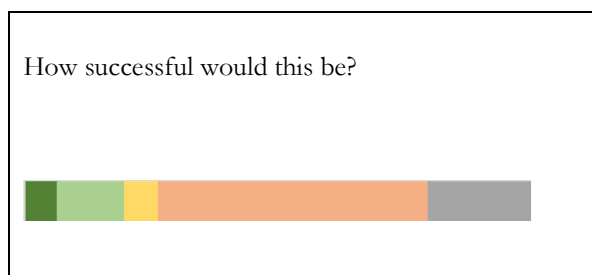


Figure 10b. Affirmative responses. *dark green – extremely easy; light green – easy; yellow – neutral; light orange – difficult; dark orange – extremely difficult; gray – not asked or not answered*

This proposed solution was met with general approval from stakeholders in both the [Franklin](#) and [Jeffreys](#) groups, with almost all respondents (N=14) expressing appreciation for the idea except for one neutral stakeholder (see **Figure 10a**). When asked how successful this idea would be (see **Figure 10b**), over half of respondents (8/12) thought that it would be somewhat difficult, but none felt it would be extremely difficult.

When asked how to achieve this, one stakeholder declined to answer due to insufficient knowledge of search and recovery processes ([Jeffreys](#)).

The **need for collaboration and communication** among stakeholders emerged as a central theme that cut across suggestions. With this emphasis on communication and collaboration came an acknowledgement of **existing communication gaps** ([Jeffreys](#)), the need for “willingness” from all stakeholder groups to participate ([Franklin](#)), and **unmet calls from civilian search and recovery** for support, training, and opportunities to exchange knowledge ([Franklin](#)).

Stakeholders were united in highlighting the need for **additional resources, best practices, and standardized processes** ([Franklin](#) and [Jeffreys](#)). Highlighted resources included **funding**, but also staff and **training** ([Franklin](#)). For instance, one stakeholder ([Jeffreys](#)) noted that local law enforcement would be an important part of systematic searches but would likely ask for funding.

Stakeholders also highlighted **policy barriers and solutions**. One stakeholder commented that **conflicting jurisdictional policies** could affect the implementation of a standardized system ([Jeffreys](#)). Policy suggestions were to **treat all recovery sites as crime scenes** ([Jeffreys](#)) and to **standardize procedures** and to establish a U.S.-wide **centralized missing persons** agency (which could also coordinate internationally) ([Franklin](#)).

Increase exhumations of UHR

A database expert advocated for additional exhumations and identification driven by DNA data.

“[...] one thing I would love to see is support to agencies that need funding for exhumations, to make identifications through DNA.” – *Jeffreys*

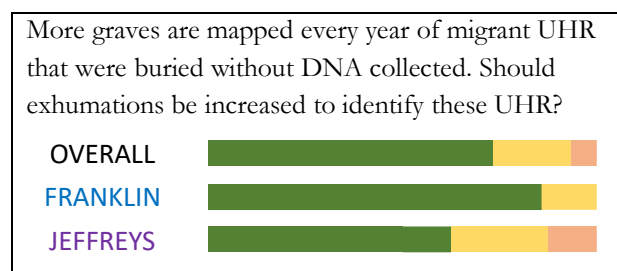


Figure 11. Post-Forum responses to solution proposed by a stakeholder during the Stakeholder Forum. *dark green – definitely yes; light green – yes; yellow – maybe; light orange – dislike no; dark orange – definitely no*

When asked whether exhumations should be increased (see **Figure 11**), a majority (11/15) responded “definitely yes.” Of the remaining, three responded “maybe,” and one responded, “probably not.”

When asked how this might be achieved, the need for funding was a central theme; all but two stakeholders (both *Jeffreys*) mentioned funding. One wrote, “Funding will be the deciding factor” (*Franklin*); this sentiment was expressed across the comments. Different stakeholders named different funding sources, agencies, and activities requiring funding. **Forensic anthropology departments** with accredited MA and PhD programs, or the potential to develop programs, as well as programs run out of forensic anthropology departments, and **crime labs** were mentioned as organizations that could be funded to increase exhumations. Federal grants and local grants were mentioned as funding sources.

Two stakeholders (both *Franklin*) broke down steps that require **funding pre- and post-exhumation**: surveying and mapping graves, exhumations, examination of remains, sampling, analysis, submission, and testing. Two other stakeholders emphasized the importance of exhumations themselves first and foremost, with one recommending that all unidentified remains without a DNA profile on record should be exhumed and, at minimum, have DNA samples taken (*Jeffreys*)

Stakeholders also emphasized the need to identify the actors involved in the exhumation process and to coordinate between them; this included a call to identify the **parties responsible** for locating and compiling information on graves to be exhumed, a call to **coordinate with funeral homes**, and a call to **connect medical examiners with anthropology departments** at universities. In the vein

of coordination and communication, several stakeholders emphasized the need to centralize aspects of the exhumation process. One stakeholder (*Franklin*) wrote that a centralized national missing persons agency would be ideal, but in its absence, counties, JPs, funeral homes, and cemeteries should be compelled to participate in a systematic process through **enforcement of existing laws by state authorities**. Another stakeholder (*Franklin*) simply stated that efforts should be centered in forensic anthropology departments at universities.

Set standards for UHR processing

A database expert described the need for standards across the United States in how UHR are managed regardless of who dies, how they died, or the location of the death.

“I think the measure of a society is how it treats its dead. And I don't think who the decedent is should ever matter. Where you die shouldn't have an impact on your experience, and that's domestic or international. I think that having very clear policy is really important. That the standard of care of what you collect, what processes are put in place. [...] And having those standard of care policy parameters, whether you do an autopsy or not, whether you collect certain photographs, DNA, fingerprints, whatever, should be in part standardized with a buffer for the anthropologist or the medical examiner to determine.” – *Jeffreys*

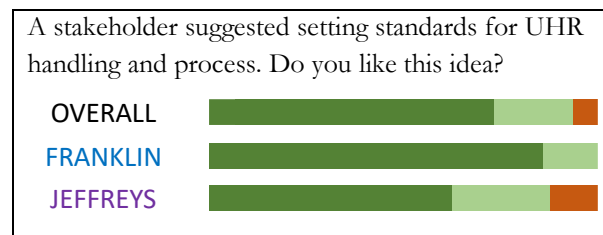


Figure 12a. Post-Forum responses to solution proposed by a stakeholder during the Stakeholder Forum. *dark green – like a great deal; light green – like somewhat; yellow – neutral; light orange – dislike somewhat; dark orange – dislike a great deal*

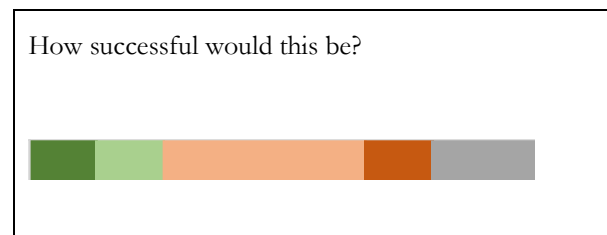


Figure 12b. Affirmative responses. *dark green – extremely easy; light green – easy; yellow – neutral; light orange – difficult; dark orange – extremely difficult; gray – not asked or not answered*

A majority (14/15) of stakeholders liked the idea of setting standards for UHR handling and process a great deal or somewhat (see **Figure 12a**). One *Jeffreys* stakeholder disliked the idea a great deal. When asked how successful this would be (see **Figure 12b**), one stakeholder (*Jeffreys*) noted that they did not respond because they were confused that the question asked about success, while the response options were around ease/difficulty; they reported they would choose “somewhat difficult” and “somewhat effective.” A majority (8/12) of respondents indicated that the solution would be somewhat difficult.

In comments on how to achieve this, a prominent theme was the challenge of **setting and implementing standards** across both counties and states with different resources and agencies with different backgrounds. Often, this observation was paired with the need for funding. One stakeholder said **a drastic increase in funding** was likely necessary because non-medical examiner cities or counties “do not have the **facilities/expertise/resources** to begin to come close to medical examiner standards” (*Franklin*). Another noted, “Funding presents a major hurdle, as many jurisdictions have **huge geographic areas** to cover and **insufficient staffing** for other responsibilities” (*Franklin*). The stakeholder who disliked the idea disliked it because it “depends on availability of supplies at each county/state/locale.” (*Jeffreys*). The same stakeholder who highlighted discrepancies in staffing and geographic size also highlighted the challenges posed by the diverse professions involved in processes, writing “It may be **difficult to obtain consensus** on what the minimum examinations are, as coroners, medical examiners and justices of the peace have varied roles, responsibilities and perspectives” (*Franklin*). Another stakeholder reflected, “I think [it would be] somewhat difficult in that each agency currently has different protocols and resources” (*Jeffreys*). One stakeholder felt that “the JP system should be updated or abolished in Texas” because “non-specialists should not be responsible for medicolegal death investigations” (*Franklin*).

One stakeholder highlighted the need for “agreement among the different stakeholders to develop the standards” (*Franklin*). A second stakeholder also advocated for “Develop[ing] an **updated forensic manual outlining best practices** for managing the remains of migrants in line with humanitarian priorities, with input from experts across multiple jurisdictions” (*Franklin*). A third stakeholder felt best practice recommendations should be set at the federal level (*Jeffreys*).

Stakeholders discussed different strategies to **ensure compliance with standards**. One wrote that it’s “easy to create the standard process and best practices, more challenging to enforce/implement.” (*Franklin*). Another wrote, “[organization redacted] did a comprehensive guide on best practices along the border which could be a good resource. The challenge lies in **enforcement and accountability**” (*Franklin*). While some stakeholders favored **motivating compliance with funding**, others leaned towards **oversight and enforcement**. One stakeholder suggested funding for education, communication, and to “monitor progress” (*Franklin*).

The stakeholder who advocated for setting recommendations at the federal level felt the next step would be to “encourage multi-state participation with federal support funding.” (*Jeffreys*) Several stakeholders noted **the likely resistance of stakeholders to new standards**: “Would be a **slow process**. Some will not accept the new rules or go for training. Need to make it mandatory for new hires and the next generation of UHR specialists. **Phase out the old way of doing things**” (*Jeffreys*). Another stakeholder noted, “Local medicolegal authorities may not want the suggestion[s] or training. Funding would be needed to entice same local authorities” (*Jeffreys*). Another stakeholder suggested that training and education in standardized protocols should be mandated by law (*Jeffreys*).

Beyond the stipulation that standards are in line with humanitarian priorities, only one stakeholder commented on the content of the standards, noting that they “must maintain flexibility of disposition of UHR” (Jeffreys).

Educate MEs on various ID techniques

A medicolegal expert commented on the value in their experience of specific training for MEs on fingerprinting and DNA.

“Border Patrol with [name redacted] had worked with us on the macro photography, we matched a whole bunch of people that way. But I hear that sometimes they were too mummified or the skin was slipping off or... You can do prints from mummified fingers, and there's hydration techniques and everything but maybe just educating the medical examiners too about different techniques, getting border patrol involved to take pictures.” – *Jeffreys*

Dedicated UHR storage facilities

A medicolegal expert comment on the value of dedicated facilities to store UHR.

“It was actually cheaper for us to move into a building and hire two autopsy techs to stay at the funeral home. Yeah, and they are happy now because now they just have a building and they pay the electric but that's it. They don't have to pay the \$300,000 a year to store [UHR], because that year, the year they had \$300,000, we had a lot of bodies and some of them were held for six months before burial because we're waiting for DNA.” – *Jeffreys*

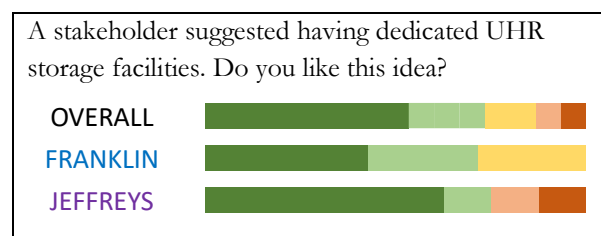


Figure 13a. Post-Forum responses to solution proposed by a stakeholder during the Stakeholder Forum. *dark green – like a great deal; light green – like somewhat; yellow – neutral; light orange – dislike somewhat; dark orange – dislike a great deal*

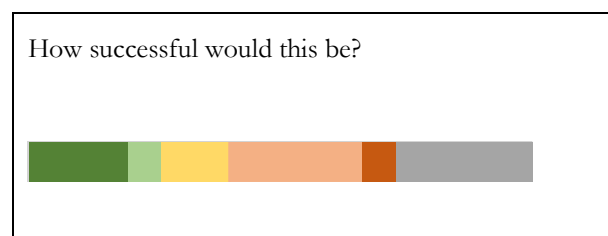


Figure 13b. Affirmative responses. *dark green – extremely easy; light green – easy; yellow – neutral; light orange – difficult; dark orange – extremely difficult; gray – not asked or not answered*

Over half of the stakeholders liked the idea a somewhat or a great deal (11/15) (see **Figure 13a**), and none of the **Franklin** group disliked the idea. Two **Franklin** stakeholders were neutral, and two **Jeffreys** stakeholders disliked it somewhat or a great deal. When asked how successful the idea

would be (see **Figure 13b**), stakeholders were split, with both groups expressing that implementation would be difficult. Only *Jeffreys* stakeholders expressed that the idea could be extremely or somewhat easy.

Stakeholders distinguished between **different categories of remains and types of storage facilities. Fleshed and skeletal remains have different storage requirements**: “While skeletal remains would only require storage space and containers, fleshed remains present many logistical problems” (*Jeffreys*). Stakeholders expressed **both intermediate and long term hopes for storage facilities**. For some, proper burials in cemeteries was an initial goal: “The political will would have to come first[,] but a state[-]own[ed] cemetery would be a start,” wrote one stakeholder (*Jeffreys*). Another commented, “Funding for the spaces would be hard, but it would help so that there are fewer cremations and poor burials of unidentified remains” (*Franklin*). A third stakeholder was adamant that “UHR should NOT be cremated and burial should be avoided. Traceability of remains should be maintained at all times.” This stakeholder suggested that “Better coordination with universities who have forensic anthropology programs (including taphonomic research and storage facilities) might be a solution” (*Franklin*).”

Setting storage type aside, one stakeholder felt the storage facilities could be a “one stop shop” for UHR (*Jeffreys*). Another stakeholder highlighted the need for **legislation** “to govern the activities of such an entity” (*Franklin*).

As highlighted above, **political will and funding emerged as key needs and barriers**: A stakeholder noted that “Funding would be the primary barrier.” (*Franklin*). Stakeholders supplied potential implementation steps to lower these barriers and direct resources: One stakeholder listed as needs “State funding for the facility and governmental oversight to promote buy-in from medicolegal authorities” (*Franklin*). “Cross state funding” to allow “pool[ing] of resources supplemented by a grant” was recommended by another stakeholder (*Jeffreys*).

Among stakeholders who did not like the idea, one felt **the lack of resources was too high a barrier**, writing: “no funding in small rural areas, no units, no land, no ...” (*Jeffreys*). The second stakeholder who did not like the idea also was concerned with costs, noting that **a central storage facility for remains would add transportation and storage costs to each case**. They also felt that even for UHR cases where there is not suspicion of foul play, the **human remains evidence should be treated as though it were part of a criminal investigation**, including a chain of custody through an investigating agency (*Jeffreys*). Transferring remains to a central location would interrupt this chain of custody. A further logistical complication, they noted, emerges **when authorities have to determine whether to send remains to the central facility or keep them in jurisdiction**; this would require them to determine whether remains were migrants or U.S. citizens and if they were victims of homicide.

FRS Collection and Processing

The term “FRS collection” encompasses the process of families coming forward to provide DNA samples. This includes outreach to families by organizations that can collect DNA samples, why and how to provide FRS, and decision-making by families about when and how to provide FRS. It also encompasses the processes for collection of the FRS, including an informed consent process and the physical collection of the DNA specimen. “FRS processing” starts with the handling of specimens for DNA extraction and analyses, and uploading the DNA data to the appropriate database, where it can be compared against DNA data from UHR. As described in the above **Background** section, the facility where the DNA sample is processed and the database where the DNA data are held vary depending on whether families provide FRS to law enforcement or to NGOs. The challenges resulting from how databases are currently structured are discussed separately below, under **DNA Data Sharing**. Many of the challenges around FRS collection and processing voiced by stakeholders are contributors to an overall lack of access to families and/or contributions from families. Some challenges raised were logistical, such as the difficulty of reaching families in remote locations to collect FRS. Others centered on stakeholders’ experiences of families’ hesitancy to approach law enforcement due to mistrust. Stakeholders also discussed practices on the part of FRS collectors that hinder or prevent FRS collection, including inadequate training on collection processes for officials tasked with FRS collection, and LE failure to accept or efficiently submit FRS from families inside and outside their jurisdictions. Finally, stakeholders were concerned that consent processes and privacy protections for DNA data did not sufficiently protect families. **Table 6** details the specific FRS collection and processing challenges extracted from the Forum discussions in order of the priority given to them by stakeholders in the post-Forum questionnaire. Solutions related to FRS collection and processing that were extracted from the Forum discussions are also listed, order determined by the study team. Priorities, challenges, solutions, and post-Forum questionnaire comments on solution viability are discussed in detail below.

Table 6. FRS processing challenges, priorities and solutions

Priority	Challenges
1	Difficulties in collecting FRS from families outside the United States
2	Not enough FRS collection
3	Families distrust law enforcement
4	Families live in remote locations, making it hard to collect FRS
5	Law enforcement control FRS collection
6	FRS collection practices (like consent or training) are inadequate
7	Inadequate privacy protections for data collected
8	Law enforcement agencies do not send FRS to laboratories
9	LE agencies refuse to take FRS from families outside of their jurisdiction
	Solutions
	Encourage directed outreach for FRS
	Rapid DNA could help build trust with families
	Enable trained third parties to collect FRS
	Hire culturally appropriate FRS collection workforce
	Hire trauma-experienced FRS collection workforce
	Educate families on FRS provision
	NGOs could run rapid DNA
	Encourage directed outreach for FRS outside U.S.

FRS collection and processing priorities

The two groups of stakeholders were for the most part aligned in the priorities for FRS collection and processing (see **Figure 14**), with the top concerns being the difficulties in collecting FRS from families outside of the United States, the fact that there is not enough FRS collection, and the supposition that families distrust law enforcement, and hence do not come forth to provide FRS.

PRIORITIES: FRS COLLECTION / PROCESSING	OVERALL	FRANKLIN	JEFFREYS
Difficulties in collecting FRS from families outside the United States	1	1	2
Not enough FRS collection	2	3	1
Families distrust law enforcement	3	2	4
Families live in remote locations, making it hard to collect FRS	4	5	3
Law enforcement control FRS collection	5	4	5
FRS collection practices (like consent or training) are inadequate	6	7	6
Inadequate privacy protections for data collected	7	6	9
Law enforcement agencies do not send FRS to laboratories	8	9	7
LE agencies refuse to take FRS from families outside of their jurisdiction	9	8	8

Figure 14. FRS handling priorities. Stated challenges with collection and processing of FRS emerging from the conversations during the Stakeholder Forums were grouped into categories, then stakeholders were asked to rank them from most to least important in the post-Forum questionnaire. *priorities colored dark green – highest ranked priority; light green – lowest ranked priority*

FRS collection and processing challenges

Fourteen of the participants (14/26, 53.9%) noted on their notecards at least one challenge related to FRS collection. Most comments were simply “acquiring FRS” or “getting FRS,” and some were more specific.

Difficulties in collecting FRS from families outside the United States

Several stakeholders wrote on their notecard challenges with obtaining FRS from outside the United States, including a JP and a database expert: “difficulty getting FRS collected outside U.S.” (*Jeffreys*), “FRS chain of custody from Mexico, especially from interior” (*Jeffreys*)

A DNA laboratory expert commented on the difficulty in coordinating FRS collection outside of the United States.

“We've even had families in other countries that'd love to get in touch with law enforcement or the consulate or someone working out of the United Nations. Can't always do it [...]” – *Jeffreys*

Not enough FRS collection

A humanitarian organization stakeholder commented on the lack of FRS collection in comparison to the number of UHR awaiting identifications.

“I can speak from experience, not in terms of strictly missing migrants but just missing people in general, that the submission rate for unidentified human remains that are found for DNA testing is much higher than the submission rate of family reference samples and it's night and day and that's a limiting factor [...]” – *Franklin*

Families distrust law enforcement

Several stakeholders wrote on their notecard challenges with trust, including representatives of consulates, migrant advocates, DNA laboratories, and humanitarian organizations: “family fear to submit DNA even to an NGO” (*Franklin*), “families may not trust law enforcement” (*Franklin*), “building trust with families to obtain FRS” (*Franklin*), “getting families to come forward” (*Jeffreys*), “inability to obtain FRS (due to language, concern over legal status, etc.)” (*Franklin*)

A humanitarian organization stakeholder commented the importance of building trust with families that do not trust the government or law enforcement.

“[...] the building trust with the families, especially that may be distrustful of governments or law enforcement is important.” – *Franklin*

A database expert in the *Jeffreys* group iterated the need for support services for a vulnerable migrant population.

“I think that, when you are dealing with families who are already inherently afraid, that having people with mental health services, victim assistance services, backgrounds in trauma informed approaches, building policies around safe harbor or safe haven, like when people abandon babies at hospitals.” – *Jeffreys*

A DNA laboratory expert commented on the fact that most families do not come in to talk to police.

“[...] our challenge was families weren't coming to talk to us. [...] [They're] supposed to walk into a precinct and talk to our best sergeant, but they are not going to do that.” – *Jeffreys*

Families live in remote locations, making it hard to collect FRS

A consulate stakeholder noted on their notecard the challenge of “obtaining the samples of the families who live in a remote area and who distrust the government.”

A federal agency stakeholder noted that it is hard to collect FRS within the United States in rural areas.

“We are educating them as much as we can. The problem is also with the media outlets, a lot of these migrants are coming from pueblitos, ranchitos, and they don't have TVs. They aren't getting that information. All they know is this is how their parents did it, this is how aunts and uncles did it, and maybe they know a coyote. That's just the way they do it.” – *Jeffreys*

Law enforcement control FRS collection

A migrant advocate commented on how the United States manages the FRS data differently from other countries that allow sharing of FRS data for identifications.

“And there's other countries that [allow sharing]. The U.S. has a law enforcement monopoly on Family Reference collection and it's not the only way to manage family reference sample data.” – *Franklin*

FRS collection practices (like consent or training) are inadequate

A JP commented on the lack of training for them on how to properly collect FRS.

“So that's what we're facing with, I need to know how to get the migrant that has deceased to the proper place and do all the steps I need to do, and I need help without going into interior Mexico, because all the DNA labs we took, "Well, we want chain of custody. We want chain of custody." We don't want the local priest taking the sample, putting it in an envelope and mailing it to the consulate. [...] But that's part of the problem, I can't get reliable family reference samples to send to somebody.” – *Jeffreys*

Inadequate privacy protections for data collected

A migrant advocate commented regarding the potential use of rapid DNA instruments that privacy protections might not be stalwart.

“[...] I think like any technology it depends on who is holding that technology and who has access to it. So potentially it could be really powerful but I could see it potentially being very risky for families in terms of who is holding the equipment and who is exposed to the data.” – *Franklin*

A database expert expounded on the sensitive information contained in a DNA specimen and the importance of having strong privacy protections in place to prevent misuse of the specimen or data.

“[...] we're now talking about actual reference samples where people can take cuttings of those swabs and do research to find out your predisposition for disease, or your risk factors to get health insurance, or to exploit people who may be adopted and don't want their information sold to [company redacted] and their biological parents finding them like, "Hey by the way, phone call from long lost person." And I think that, again, in the world of confidentiality and privacy rights, that right should lie with the person whose information is being collected and understanding that the person sitting across from them is bound by rule. Whether its law or policy or whatever, that that genetic information is going to be protected without question.” – *Jeffreys*

Law enforcement agencies do not send FRS to laboratories

A medicolegal expert talked about their experience with having UHR is storage and not receiving FRS collected by law enforcement.

“The problem is [the law enforcement] don't ever tell us they got [the FRS] and they're not sure what to do with it, and it gets filed.” – *Jeffreys*

LE agencies refuse to take FRS from families outside of their jurisdiction

An anthropology expert (*Franklin*) noted on their notecard the challenge of “getting agencies to take a DNA sample (FRS) when family reports missing relative even when required by law.”

FRS collection and processing solutions

In the post-Forum questionnaire, participants were asked to rank the best strategies for FRS outreach (out of three) and for FRS collection across borders (out of four) (see **Figure 15**).

Generally, the two groups seemed in agreement, although the sampling was minimal, so the differences among the rankings were slight.

A. FRS OUTREACH STRATEGIES ACROSS BORDERS	OVERALL	FRANKLIN	JEFFREYS
NGOs could contact families and coordinate FRS collection with law enforcement	1	1	2
NGOs could contact families and coordinate FRS collection for private laboratory analysis; then, if there is a presumptive match, coordinate with law enforcement for a second sample for CODIS laboratory confirmation	2	2	3
Law enforcement could work with families to coordinate FRS collection (no NGO involvement)	3	3	1
B. FRS COLLECTION STRATEGIES ACROSS BORDERS	OVERALL	FRANKLIN	JEFFREYS
NGOs could contact non-U.S. families and coordinate FRS collection by U.S. law enforcement or through a relevant Consulate office	1	1	3
Consulate offices in the relevant resident country/jurisdiction could work with families for FRS collection for law enforcement analysis within the resident country/jurisdiction; that law enforcement agency can work with U.S. agencies for DNA data comparisons (no NGO involvement)	2	3	1
NGOs could contact non-U.S. families and coordinate FRS collection for law enforcement analysis within the resident country/jurisdiction; that law enforcement agency can work with U.S. agencies for DNA data comparisons	3	2	2
NGOs could contact non-U.S. families and coordinate FRS collection for private laboratory analysis; then, if there is a presumptive match, coordinate with relevant jurisdictional law enforcement or through a relevant Consulate office for a second sample for CODIS laboratory confirmation	4	3	4

Figure 15. FRS outreach and collection strategies. Rankings for (A) FRS outreach strategies (N=15) and (B) FRS collection strategies (N=14) across borders. *priorities colored dark green – highest ranked priority; light green – lowest ranked priority*

Some of the potential solutions to FRS collection and processing challenges that were introduced by stakeholders during the sessions were tested in the post-Forum questionnaire.

Encourage directed outreach for FRS

A humanitarian organization suggested an outreach campaign for FRS collection.

“[...] with unlimited resources I would like to see directed outreach and collection of samples because that will allow for more identification.” – *Franklin*

Rapid DNA could help build trust with families

A DNA laboratory expert suggested that rapid DNA instruments might help to alleviate families' fear as to what happens to the FRS specimens.

“I think for the Family Reference Samples collection it could be nice for the families to sort of demystify the process and to see instead of the sample being sent off to some unknown laboratory they're watching the testing there on site at a collection site. If the profile is successful the profile could be saved and sample could be destroyed on site so there's no question as to what's going to happen to my sample after this. So I think for trust building with the family it could have a huge impact and it could also just make testing more accessible since these can be deployed in the field.” – *Franklin*

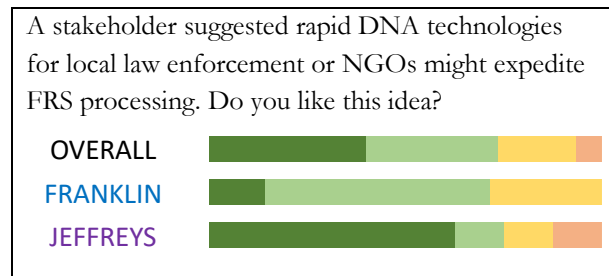


Figure 16a. Post-Forum responses to solution proposed by a stakeholder during the Stakeholder Forum. *dark green – like a great deal; light green – like somewhat; yellow – neutral; light orange – dislike somewhat; dark orange – dislike a great deal*

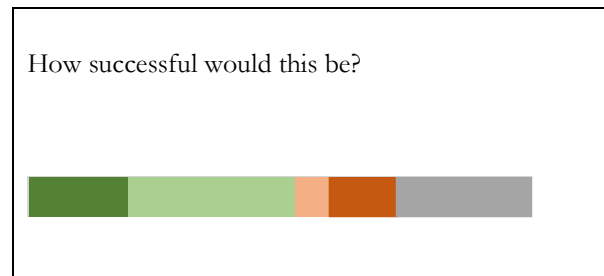


Figure 16b. Affirmative responses. *dark green – extremely easy; light green – easy; yellow – neutral; light orange – difficult; dark orange – extremely difficult; gray – not asked or not answered*

Of respondents (see **Figure 16a**), 11/15 liked the idea of rapid DNA for FRS processing, and only one *Jeffreys* stakeholder (*Lucia*) disliked the idea somewhat. When asked how successful the idea would be (see **Figure 16b**) A majority (8/11) respondents felt using rapid DNA for FRS processing would be somewhat or extremely easy.

Stakeholders **did not think rapid DNA use was feasible across FRS collection contexts** due to a variety of factors. One stakeholder summed up the categories of stakeholders' concerns, stating that before rapid DNA use, “The costing model, policies and data protection would need to be first established” (*Franklin*).

Two stakeholders felt **rapid DNA could not be widely implemented** but might be used in the future or in **limited contexts given appropriate funding and training**. One of these stakeholders expressed concern over the technology itself, although these concerns were tied to external factors such as **cost and training**: “Rapid DNA still seems to have a long way to go before being

implemented widely. But maybe in the future given the right technology, funding, training, and quality assurance” (*Franklin*). A second stakeholder was also concerned with training and funding, writing “Instruments are expensive (initial purchase, maintenance, cartridges.” This stakeholder also could not envision wide implementation: “[Use of rapid DNA is] Only achievable in more high-use areas” (*Franklin*).

Stakeholders were also concerned about the **data security and privacy risks** that come with the ability of **non-experts to use rapid DNA machines to process FRS**. One stakeholder noted that use of rapid DNA instruments “increases number of people handling DNA data” (*Franklin*). Another stakeholder had concerns about the concentration of authority in the organization using rapid DNA: “While testing can be done by non-technical individuals, there are concerns about privacy – genetic and personal, legal authority and potential misuse” (*Franklin*). Another stakeholder simply stated, “I would not use NGOs” (*Franklin*).

One stakeholder highlighted **precedent for rapid DNA companies participating in projects**, offering an intermediary solution to funding concerns: “Rapid DNA companies are always looking to promote their product. Being part of such a large project is one such way” (*Jeffreys*).

The stakeholder who disliked the idea felt that **focusing on rapid DNA would detract from the more important goal of creating a single system for profile comparisons**: “The goal should be to develop and upload profiles into one system for the most efficient and effective ability to resolve cases, not create disparate databases where profiles must be manually compared through multiple systems.” (*Jeffreys*). They also argued that **rapid DNA for FRS would likely not speed up the process of identification**: “It is the UHR profiling process that takes the longest, not the FRS samples, so expediting FRS samples would not add value unless the UHR profiles had already been developed.” They further specified that 1) Rapid DNA profiles developed by NGO personnel would **not qualify for upload to CODIS** and 2) Rapid DNA would be **more expensive than batch processing of samples in a lab**.

Enable trained third parties to collect FRS

A database expert suggested that trained experts other than law enforcement might be able to serve as more trusted FRS collectors.

“And so, do I think that there are people like SANE-SART’s, people who can be qualified, people who can be added to the law enforcement queue that aren’t law enforcement? Civilians or consulates, things like that, that may be more approachable? Sexual victim assistance service providers? Absolutely. But do I think we should just let an intern at an NGO collect it because they can? Absolutely not. But that’s just my opinion.” – *Jeffreys*

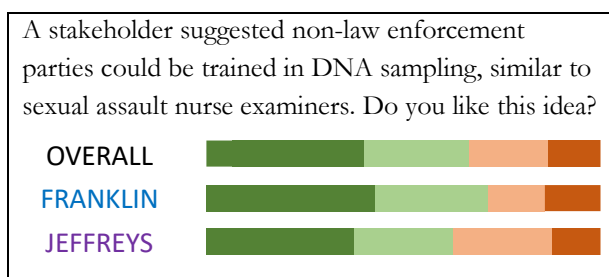


Figure 17a. Post-Forum responses to solution proposed by a stakeholder during the Stakeholder Forum. *dark green – like a great deal; light green – like somewhat; yellow – neutral; light orange – dislike somewhat; dark orange – dislike a great deal*

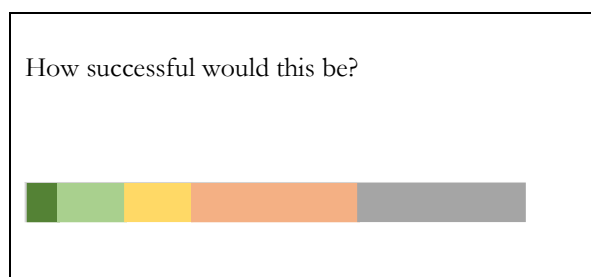


Figure 17b. Affirmative responses. *dark green – extremely easy; light green – easy; yellow – neutral; light orange – difficult; dark orange – extremely difficult; gray – not asked or not answered*

Stakeholders were presented with the idea that non-LE parties could be trained in DNA sampling, similar to sexual assault nurse examiners. These trained collectors could be entrusted with sampling on behalf of law enforcement without requiring direct law enforcement interaction, potentially to foster trust with families. When asked whether they liked this idea, 10/15 responded positively, with four of these liking the idea somewhat and six liking it a great deal (see **Figure 17a**). Two disliked it somewhat and two disliked it a great deal. Both **Franklin** and **Jeffreys** groups were represented in each of these categories. When asked how successful this would be (see **Figure 17b**), six stakeholders thought it would be somewhat difficult, two were neutral, and two thought it would be somewhat easy. None thought it would be extremely easy or extremely difficult.

The **ease of training DNA collectors** was only discussed by one stakeholder, who noted that “FRS collections are very simple, so someone could be trained in these collections quickly” (*Jeffreys*). Stakeholders tended to focus instead on the **relationship between trained DNA collectors and law enforcement** and what the process should look like.

A primary theme of stakeholders’ discussion when asked how to achieve this was whether to treat missing persons investigations primarily as **humanitarian** or as **criminal investigations**, with the accompanying requirements for FRS collection. One stakeholder wrote, “It’s a great concept and would be relatively easy to do logistically but given the development of missing person investigations in the US, I think it’d be difficult for law enforcement/authorities to accept it. Missing persons needs to be re-conceptualized as a **humanitarian priority first**, and (potential) **criminal investigation second**. That will require a serious shift in the framework across all jurisdictions/agencies in the U.S.” (*Franklin*). In contrast, another stakeholder wrote, “Ultimately it [DNA collection] should be the responsibility of government, in particular law enforcement, as a significant number of missing persons cases, especially in Mexico, are linked to organized criminal activity, whether drug-related or human trafficking related, and not just migration” (*Franklin*). This stakeholder saw a place for non-LE, trained DNA collectors where government was not capable, “I

would distinguish between collection within the US, where **this should be the responsibility of law enforcement**, and outside the US, such as in countries like Mexico, where the government hasn't demonstrated the ability to adequately address this issue" (*Franklin*).

Stakeholders also discussed the role of law enforcement in a trained DNA collector program. **Law enforcement buy-in** was a key point, as the above stakeholder's comment on LE acceptance reflects. Another stakeholder wrote that "law enforcement agencies would need assurances that training, chain-of-custody, etc. are compliant with requirements" (*Franklin*). Law enforcement would also need to be involved in the process, with one stakeholder noting **the importance of coordinating with jurisdictional law enforcement agencies** (*Jeffreys*).

Several stakeholders were particularly concerned with **data protections and privacy**. One stakeholder wrote that the use of trained DNA collectors "would depend on very cautious and transparent privacy protections for all data collected." (*Franklin*). Another also stipulated "many restrictions on data once collected by law enforcement or NGO" (*Jeffreys*).

These concerns around data protection reflect another stakeholder's support for training only "if it fosters **trust with families**" (*Franklin*).

One stakeholder suggested that **NGOs should receive the training**, while another felt that with the right policy and development of relationships, **existing medical professionals could take the samples in this context**. Finally, AABB collection training was suggested as another training model, in addition to SANE-SART training.

Those who did not like the idea cited **funding priorities and lack of resources**: One stakeholder (*Jeffreys*) felt that any funding should first be used for **exhumations, analysis, and investigation**. Another stakeholder felt that the focus should be placed on **consulates and medical examiners** as collectors (similarly to the stakeholder above), as they currently can submit to CODIS; **other trained DNA collectors currently would not meet CODIS requirements** for NDIS inclusion, and so would "negate the value of a national search" (*Franklin*). Finally, one stakeholder was concerned with accountability and an increase in the margin for error (*Jeffreys*).

Hire culturally appropriate FRS collection workforce

A DNA laboratory expert described their use of culturally sensitive staffing and training in interviews as one approach to gain trust with limited-English proficiency families.

"What we had to do, we had to change the way that the process, so that we can go ahead and hire 20 people to be on the team, but now the requirements to be on the team, not only

forensics and DNA knowledge, and odontology and fingerprints, and being able to interview family members. But we hire folks where their primary, their first language is Spanish. That they were born in another country, so my team is folk from [four country names redacted]. And that's just a tremendous asset for us. The amount of antemortem and missing persons cases are filed because they are so comfortable. They aren't going to talk to me, they're not going to walk into my building and sit down with me, it's a cop who is going to arrest me or it's an agent. But when I have someone that is from the same village as that family. It's just an amazing thing to see, so successful.” – *Jeffreys*

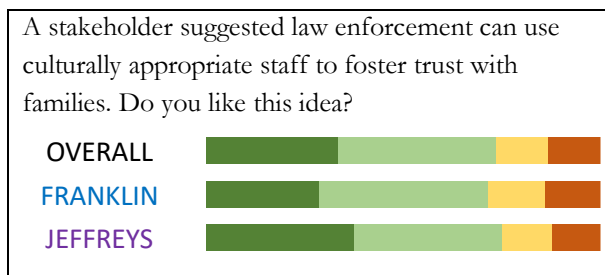


Figure 18a. Post-Forum responses to solution proposed by a stakeholder during the Stakeholder Forum. *dark green – like a great deal; light green – like somewhat; yellow – neutral; light orange – dislike somewhat; dark orange – dislike a great deal*

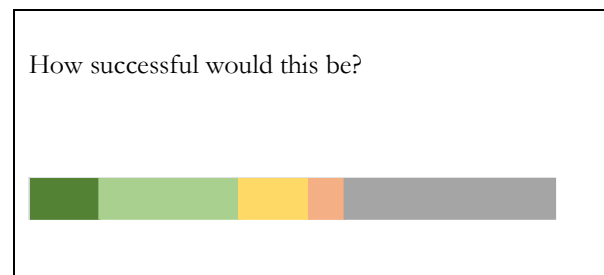


Figure 18b. Affirmative responses. *dark green – extremely easy; light green – easy; yellow – neutral; light orange – difficult; dark orange – extremely difficult; gray – not asked or not answered*

When asked whether they the idea of culturally/linguistically sensitive staff, a majority (11/15) responded positively (see **Figure 18a**). The responses of the two groups were almost identical. When asked how successful the idea would be (see **Figure 18b**), a majority (6/9) of respondents selected that it would be extremely or somewhat easy. One *Franklin* stakeholder felt it would be somewhat difficult.

One stakeholder agreed that **hiring culturally appropriate staff** could contribute to fostering trust with families but emphasized that **linguistic and cultural competence alone is not enough to foster trust**. They emphasized **the need for humanitarian options for families outside of law enforcement**, “It is not just the agent who speaks with the families [that fosters trust], but it [is] also what happens to their data, the fact that they'd still have to interact with LE. I think it could help, but families need to be given humanitarian options other than LE” (*Franklin*).

Another stakeholder felt that all organizations, not just law enforcement, would benefit from requiring linguistic and cultural competence in staff working with families: “Families need to trust the agencies and agents involved in taking personal and sensitive information. All agencies (whether NGOs or governmental) need to take this approach” (*Franklin*).

Several stakeholders emphasized the potential success of culturally and linguistically sensitive staff. The stakeholder who proposed this solution in the forums reemphasized how “extremely successful” culturally and linguistically sensitive staff were: “more identifications were made because of the bond between interview specialists and the families” (Jeffreys). A second stakeholder also felt that it would be extremely successful but expressed doubts about implementation, commenting that it would be “somewhat difficult to implement because it would require that every agency has **training** and/or access to someone who could assist them in working with families in culturally-sensitive manners” (Jeffreys). A third stakeholder (Jeffreys) felt that the main barrier was **funding**, but that work in the sexual assault space would provide a model for training staff to be culturally/linguistically sensitive. Finally, a stakeholder (Jeffreys) noted that NGOs could provide culturally sensitive staff.

Of those who commented on why they disliked the idea, one felt that it **should be the role of consulates** to supply culturally and linguistically sensitive staff, who would then communicate with law enforcement. The other felt that **such staff would not be “vested” in the process** (Jeffreys).

Hire trauma-experienced FRS collection workforce

As noted above, a database expert described the need for support services for a vulnerable migrant population, including “having people with mental health services, victim assistance services, backgrounds in trauma informed approaches.” (Jeffreys)

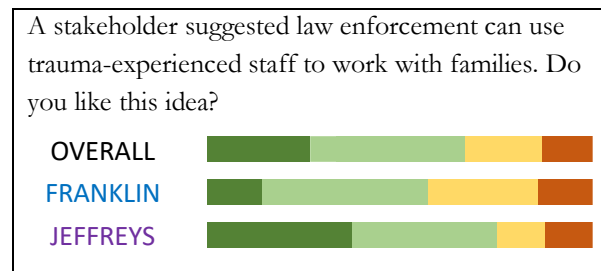


Figure 19a. Post-Forum responses to solution proposed by a stakeholder during the Stakeholder Forum. *dark green – like a great deal; light green – like somewhat; yellow – neutral; light orange – dislike somewhat; dark orange – dislike a great deal*

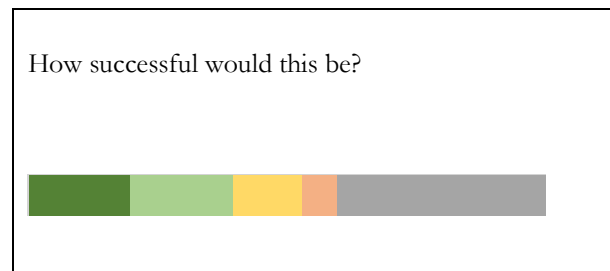


Figure 19b. Affirmative responses. *dark green – extremely easy; light green – easy; yellow – neutral; light orange – difficult; dark orange – extremely difficult; gray – not asked or not answered*

A majority of stakeholders (10/15) liked this idea (see **Figure 19a**), and responses between the two groups were similar. When asked how successful the idea would be (see **Figure 19b**), most (6/9) respondents felt it would be extremely or somewhat easy. One Jeffreys stakeholder (Jeffreys) felt it would be somewhat difficult.

Three stakeholders commented on the importance of trauma-sensitive staff, pointing to **successful existing programs that provide mental health support**, such as those at the Red Cross affiliates and ICRC or other specialist groups. One stakeholder (*Franklin*) felt that **any stakeholder working with families of missing migrants should be given training around trauma**; another highlighted how **families provided with support for mental health continue to use the services long after interviews are completed**.

While some stakeholders emphasized the availability of trainings or specialist agencies, one stakeholder (*Jeffreys*) felt that **the need for all agencies to have access to trained staff would be a barrier**. One stakeholder noted that the American Red Cross and ICRC are developing Psychological First Aid (PFA) and Resiliency in Times of Stress workshops, and that other trainings might be available. Another stakeholder recommended using work in sexual assault response as a model for training.

Two stakeholders who disliked the idea commented; one felt that **lack of funding, manpower, and facilities were a barrier to implementation** (*Jeffreys*). The other felt that **the mandate of LE was antithetical to trauma-sensitive engagement and trust building between LE and migrants**, writing, “They are not social workers they are law enforcement with only one mandate to detain and incarcerate [*sic*] migrants. There is no trust to work on” (*Jeffreys*).

Educate families on FRS provision

A JP advocated for targeted education for families on the importance of coming forward to provide FRS even if the family is undocumented.

“I’m just going with education. The only way we can let these families know that they are safe to come forward is to educate them from the very beginning that even though they are missing a loved one who may have crossed, and as it is now, if you’re crossing, you’re illegal. Detainee or whatever you want to call it, they are illegal. They are breaking the law. That’s why border patrol steps in.” – *Jeffreys*

NGOs could run rapid DNA

A DNA laboratory expert suggested that rapid DNA instruments in the hands of NGOs could help with FRS collection.

“[...] I think what I was envisioning [was that] these machines could be in the hands of the NGOs so the family could be there [for sample processing]. So in addition to just collecting, the NGOs could even be processing and then that [DNA] data could be shared with whatever

database is being used for comparison but the component of the data can still be [with the] NGO.” – *Franklin*

Encourage directed outreach for FRS outside U.S.

A DNA laboratory expert encouraged campaigns to reach families that have not come forward.

“Now that I think about it, I would love to have billboards on the sides of buses and advertising in commercials, [...] I'd put a banner on the Empire state building that would say, "Come talk to these families that we've helped." But listening to some of the things from yesterday, about all of the bad stuff going on with the families being [extorted...], we've got to control that as well. With unlimited funding, I think the advertising campaign you've got here at the borders, you have to go to the other countries.” – *Jeffreys*

DNA data sharing and comparison

In the **Prior Research** section above, and particularly highlighted in **Figure 1** we describe the complex nature of the DNA data sharing policies in the United States for identifying migrants who die crossing the border. The prior policies and practices have resulted in siloes of data, which restricts cross-comparisons and identifications. The parties managing these various datasets are well-intended, following guidelines that align with their organizational missions, and many of these stakeholders present for the Forums.

Databases, like the federal DNA database CODIS or private databases of NGOs, allow organizations to store DNA data and to make DNA data comparisons. Stakeholders' discussion highlighted the tensions between the need for DNA data quality assurance, security, and privacy with the need to increase data sharing to maximize comparisons and the potential for identification. Both an overall lack of DNA data sharing and an overall lack of privacy protections were highlighted as concerns. The need for increased DNA data sharing is backgrounded against stakeholder emphasis on the challenge of the fragmentation of FRS and UHR DNA data in separate databases. Stakeholders also raised concerns around inappropriate sharing of DNA data collected by law enforcement to NGOs. Finally, they raised a challenge that stems from the context of migration, in which a match between UHR DNA data and FRS DNA data is unhelpful if there are false identities associated with the UHR. **Table 7** details the specific DNA data sharing and comparison challenges extracted from the Forum discussions in order of the priority given to them by stakeholders in the post-Forum questionnaire. Solutions related to DNA data sharing and comparison that were extracted from the Forum discussions are also listed, order determined by the study team. Priorities, challenges, solutions, and post-Forum questionnaire comments on solution viability are discussed in detail below.

Table 7. DNA data sharing and comparison challenges, priorities and solutions

Priority	Challenges
1	DNA data are not shared between government agencies across borders
2	Fragmentation of FRS and UHR DNA data
3	DNA data from UHR are not shared with NGOs
4	DNA data are not shared between government agencies and NGOs
5	Direct matches to CODIS are compromised by false identities of detainees
6	Direct matches to CODIS are not effective
7	Inadequate privacy protections for sharing DNA data
8	Police data are shared inappropriately with NGOs
9	Private/commercial laboratories lack legal privacy protections for DNA data
Solutions	
	Develop an independent system
	CBP could educate migrants on need for true identities

DNA data sharing and comparison priorities

The two groups of stakeholders were for the most part aligned in the priorities for DNA data sharing (see **Figure 20**), noting top the fact that DNA data is not shared across borders or between governments and that FRS and UHR DNA data are fragmented in different databases, meaning the law enforcement database CODIS and non-governmental databases. The inability to compare DNA data between the databases stymies identifications that could emerge with data comparisons.

PRIORITIES: DNA DATA SHARING	OVERALL	FRANKLIN	JEFFREYS
DNA data are not shared between government agencies across borders	1	1	1
Fragmentation of FRS and UHR DNA data	2	2	2
DNA data from UHR are not shared with NGOs	3	4	3
DNA data are not shared between government agencies and NGOs	4	3	8
Direct matches to CODIS are compromised by false identities of detainees	5	6	4
Direct matches to CODIS are not effective	6	7	7
Inadequate privacy protections for sharing DNA data	7	5	9
Police data are shared inappropriately with NGOs	8	9	5
Private/commercial laboratories lack legal privacy protections for DNA data	9	8	6

Figure 20. DNA data sharing priorities. Stated challenges with DNA data sharing emerging from the conversations during the Stakeholder Forums were grouped into categories, then stakeholders were asked to rank them from most to least important in the post-Forum questionnaire. *priorities colored dark green – highest ranked priority; light green – lowest ranked priority*

DNA data sharing and comparison challenges

Twelve of the participants (12/26, 46.2%) in the Forums noted on their notecards challenges with DNA data sharing.

DNA data are not shared between government agencies across borders

A notecard from a migrant advocate (*Franklin*) stated that one challenge is the inability to compare FRS and UHR if the FRS are obtained from outside the United States.

A DNA laboratory expert described the limitations of how FRS DNA data can be managed within jurisdictions.

“And the problem there is when [the DNA test match] comes back, I can only compare [the FRS to DNA data] in my jurisdiction. I can't compare that to someplace else in the United States, so there's a downfall.” – *Jeffreys*

Fragmentation of FRS and UHR DNA data

Most (9/12, 75%) of the 12 notecard statements on DNA data sharing related to the fragmentation of FRS and UHR data in different databases, impeding identifications.

DNA data from UHR are not shared with NGOs

One humanitarian organization stakeholder (*Franklin*) made three notes on their notecard regarding the lack of DNA data sharing (1) with civil society actors; (2) between private/state laboratories; and (3) between authorities in different states.

DNA data are not shared between government agencies and NGOs

A humanitarian organization representative noted that the willingness of agencies to work with NGOs is there, but that duplication of efforts is compounded by the inability to share DNA test results

“[...] the willingness, the partnerships are there and so that can grow stronger to work here and internationally. So there is many efforts that are being duplicated by not sharing the results.” – *Franklin*

Direct matches to CODIS are compromised by false identities of detainees

A humanitarian organization representative discussed how many migrant detainees provide a false name when detained, compromising the use of the detainee index of CODIS as a reliable database for identities.

“Now if I know what was described earlier today that you don't necessarily know who that is. You may have fingerprints, you may have retinal scan, you may have DNA or all kinds of biological identifiers but you still may not know the identity of the individual because they gave a false name. What you really need to do is connect it back to family so that isn't going to change that inability to connect with family necessarily but you would at least be able to tie those remains to a previous contact with that individual.” – *Franklin*

In the other stakeholder session, a medicolegal expert noted the same concern.

“That would be my fear, you are going to have a lot of people in your database that are not that person. And they are all going to be from Mexico because nobody wants to have to go back to Central America and make it back. If you can get dropped off in Mexico, you can come right back the next week.” – *Jeffreys*

Direct matches to CODIS are not effective

A migrant advocate comment that the use of the detainee index to aid in migrant death investigations is flawed since so few identifications of missing migrants has been through CODIS.

“Strongly disagree, with the use of CODIS in this manner. Historically, the offender index was for serious crimes so this represents a really big bracket creep for who is considered on offender and it further criminalizes people who actually haven't committed an offense. They have crossed the border due to U.S. policy and all the other historical reasons and that's not... That's a civil violation it's not a criminal offense so to then categorize that act as worthy of being categorized as an offender it's a really serious violation of the use of that system and the privacy rights of the person being collected and we saw from [redacted presentation yesterday] that they're [use of CODIS offender index] not that successful in actually then linking to unidentified human remains. So this to me seems like a classic example of trying to use technology to solve a people problem and we can see that we've already got very, very powerful technology and the breakdown is more in terms of the data sharing for the people who are already willingly submitting DNA and I think that's the other important point is several presentations today talked about family reference samples or DNA samples should be willingly submitted and when someone is in custody they can't really offer informed consent so it's an ethical violation” –

Franklin

Inadequate privacy protections for sharing DNA data

A DNA laboratory expert noted the distinct privacy protections that CODIS laboratories have that private DNA laboratories do not have.

“So [if] it's a CODIS lab that's doing DNA work in a CODIS lab and giving those DNA profiles to a private non-profit. I see some danger there. I'm also fully supportive of getting the job done and making sure that we all can communicate and compare DNA profiles, because we learned the hard way. But the regulations for this information and the fact that this is the most private thing in the world, your DNA.” – *Jeffreys*

A DNA laboratory expert discussed the distinct differences in protecting FRS DNA data being stored in a database for ongoing comparisons versus being used for 1:1 occasional comparisons.

“I think maybe when we're discussing this we make a distinction between storing data versus comparing data. I think there's a big distinction there if you're maintaining data in a database versus a one-time comparison. [...] I believe there should be an avenue to do at least 1:1 comparisons outside if there's reason to believe there's identification or potentially in certain situations, a focused comparison on a hardware data set but I know given that CODIS is a law enforcement database I can understand that there would be challenges in collecting the information for one purpose and now taking that data and storing it elsewhere, I see that's a much different situation but I think there should be an avenue for increased comparisons.” – *Franklin*

Police data are shared inappropriately with NGOs

A law enforcement stakeholder (*Franklin*) noted on a notecard that “NGOs want access to police data” and that these NGOs do not inform police of results from DNA matches.

Private/commercial laboratories lack legal privacy protections for DNA data

A database expert discussed how CODIS laboratories are well regulated.

“There's also the issue of the quality of the data. Ownership of genetic data is something that is very well regulated, if you will, in CODIS laboratories, and so you can't just blindly accept other laboratories' data, as most of you know. Not because it's not good quality, it usually could be, but there's other levels of review and things that could be involved in that. Just making sure that the databases are of the highest quality [...] And then what's done with the data afterwards as well? Is it expunged, never to be seen again from that CODIS-participating laboratory?” – *Jeffreys*

A DNA laboratory expert noted the importance of data governance protections afforded in CODIS that might be absent in private laboratories.

“I think the [data governance for the] CODIS data[base] is really strong. It works well and is protected because these other data banks that... I worked in DNA before CODIS, and I saw what went on in those privately run data banks in the smaller jurisdictions and what you could do because there was [*sic*] no rules yet. I think that we need to have those regulations in place and figure out a way that those profiles can go through, maybe, and you still follow those rules and we have eyes on those, and we have all of those rules in place before they go internationally, before they're shared with someone else.” – *Jeffreys*

They went on to discuss how the CODIS administrators have background checks and other training that is important for security of the data.

“And what happens to it [DNA] in a CODIS lab is they're in a room where we have to go through the background checks and fingerprinting in the FBI stuff, and the tests I have to take every year to use CODIS, I think that's very important.” – *Jeffreys*

DNA data sharing and comparison solutions

A series of options for UHR and FRS data sharing were provided to gather feedback on the best approach for managing data in LE vs non-LE databases (see **Figure 21**).

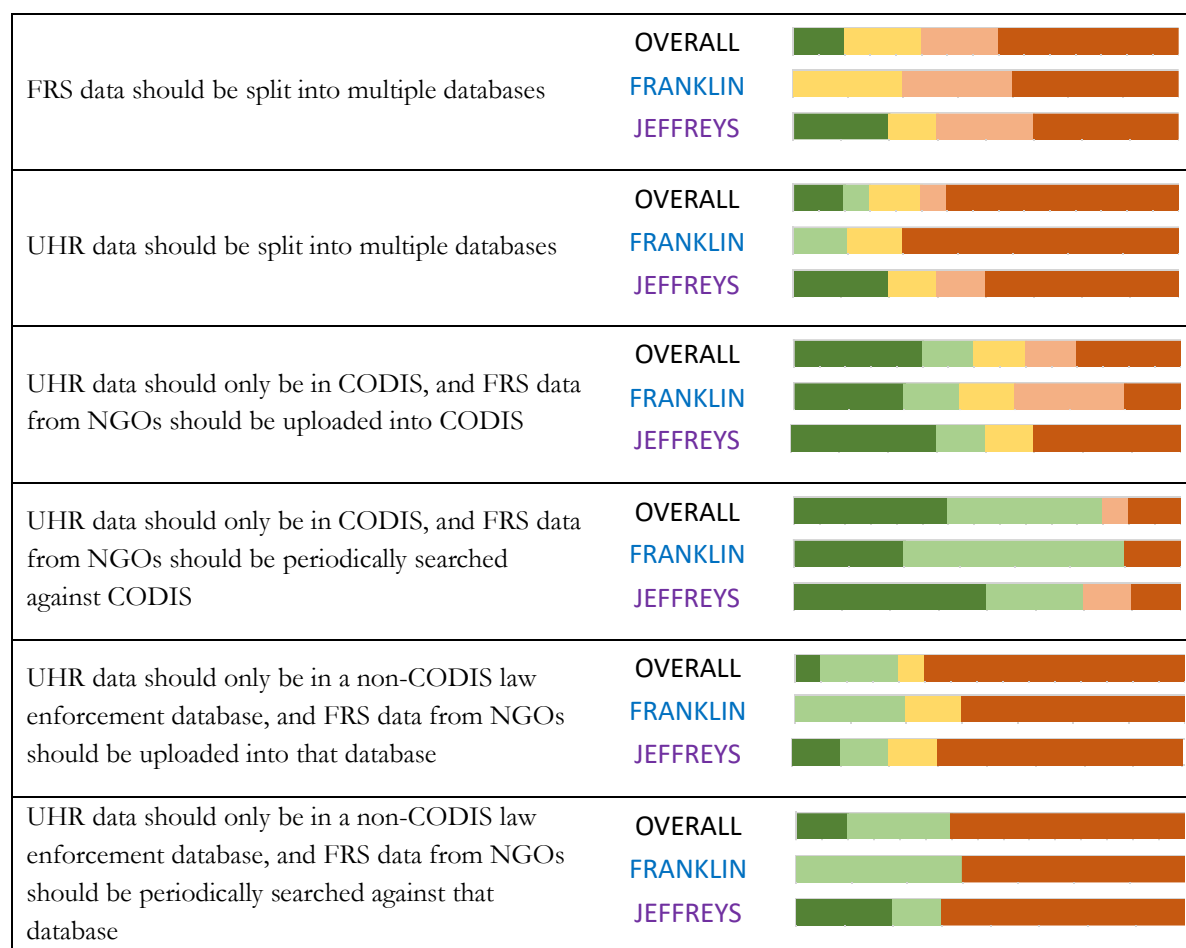


Figure 21. Preferences for data storage options. Responses to the series of Likert-scale questions on which approach would be preferred for storing FRS and UHR data. The question was presented as follows: “DNA data comparisons between different data repositories is complicated by legal requirements for data security, especially in the context of criminal investigations. DNA data from a UHR in one database will never be matched to DNA data from any FRS in another database unless the data is shared.

As long as multiple databases exist, cross-comparisons are essential. How best can DNA data be shared?"

dark green – strongly agree; light green – agree; yellow – neutral; light orange – disagree; dark orange – strongly disagree

The strategies “FRS data should be split into multiple databases” and “UHR data should be split into multiple databases” had the lowest overall support. The strategy “UHR data should only be in CODIS, and FRS data from NGOs should be periodically searched against CODIS” had the highest overall support. After evaluating the strategies derived from the Forums, stakeholders were given the opportunity to comment and to suggest additional strategies to improve DNA data sharing.

Multiple stakeholders noted steps that should be taken before the work of transitioning to new strategies. One stakeholder (*Franklin*) thought that discussion of improved strategies for data sharing were premature, as law enforcement and NGOs are not even sharing data that can legally be shared: “There is still woefully insufficient sharing of data even within of [sic] law enforcement agencies and within NGOs. **Data that can be legally shared should already be happening** rather than trying to find the one optimal solution to suit both LEA and NGO requirements.” Pertinent to insufficient data sharing even when legally possible, a second stakeholder questioned mistrust between the government and NGOs, writing, “What can we do to have **more trust in CODIS** for handling all family and UHR profiles from border crossings and undocumented families in the United States? What do NGOs need to get this trust? Government crime labs have this trust already, they have being [sic] using CODIS for 20 years and helped create it” (*Jeffreys*). Another stakeholder felt that there is **a need to change institutions, not just strategies**, with reference to management of CODIS, “That one institution can have such an enormous impact on forensics in this country is a problem” (*Franklin*). A fourth stakeholder (*Franklin*) suggested evaluating the effectiveness of the recently established **humanitarian database** at a university to see “whether any lessons can be learned that could be applied on a broader scale.” A fifth stakeholder wrote, “I think the biggest challenge we have right now is **ensuring that missing person reports are taken on** undocumented migrants, in order for DNA to be entered into DNA database(s) in the first place. Second to that are the fragmented, private DNA databases because unless/until we have all profiles in one central system like NDIS, we are going to miss hits and potential identifications” (*Jeffreys*).

Multiple stakeholders also emphasized the need to **improve international inter-agency sharing**. One stakeholder thought the goal should be to create a large scale, cross-border mechanism for data sharing, although individual agreements between stakeholders and jurisdictions could facilitate data sharing in the meantime (*Franklin*). Another stakeholder suggested data sharing between DNA laboratories and CODIS laboratories, who could then compare profiles outside of CODIS/NDIS requirements (*Franklin*). A third stakeholder noted that profiles do not need to be exclusive to a single database; this stakeholder wrote, “... if pathways existed to better share data between private labs, CODIS labs, [and] international then regardless of where the profile resided, periodic searches or additional comparisons could be facilitated

A final stakeholder (*Jeffreys*) thought that CODIS should be mandatory for everyone.

Develop an independent system

This potential solution to DNA data sharing challenges that was introduced by stakeholders during the sessions was tested in the post-Forum questionnaire.

A migrant advocate noted that the value of an independent humanitarian database for managing identifications.

“I think the problem lies with the lack of a neutral humanitarian non-law enforcement, government owned entity where families know that if they contact that entity they're going to be treated with respect. Their data is not going to be used in immigration enforcement and their data is going to be compared against unidentified human remains.” – *Franklin*

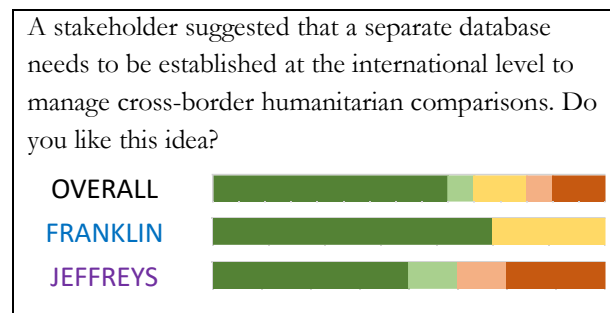


Figure 22a. Post-Forum responses to solution proposed by a stakeholder during the Stakeholder Forum. *dark green – like a great deal; light green – like somewhat; yellow – neutral; light orange – dislike somewhat; dark orange – dislike a great deal*

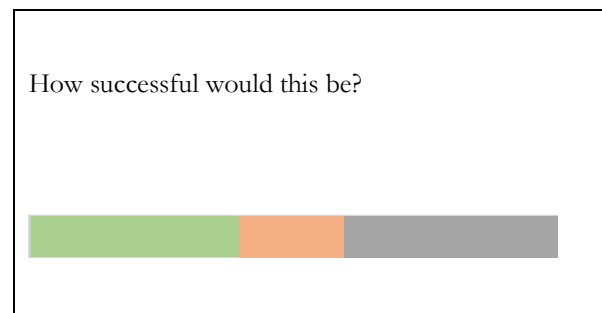


Figure 22b. Affirmative responses. *dark green – extremely easy; light green – easy; yellow – neutral; light orange – difficult; dark orange – extremely difficult; gray – not asked or not answered*

When asked whether a database needs to be established at the international level to manage cross-border humanitarian comparisons, a majority (10/15) liked the idea a great deal or somewhat (see **Figure 22a**). Three *Jeffreys* stakeholders disliked the idea a great deal or somewhat and two *Franklin* stakeholders were neutral. When asked how successful this would be (see **Figure 22b**), 6/9 felt it would be somewhat easy and 3/9 felt it would be somewhat difficult.

Stakeholders felt that an international DNA database for humanitarian comparisons **would reduce data silos**. One stakeholder (*Franklin*) wrote that such a database would **ensure the maximum amount of comparisons by eliminating fragmented datasets** and could be used to **complement local or regional databases** if not matches are found. A second stakeholder (*Franklin*) noted that it would **remedy the inability to cross-search between databases**. A third

felt that existing collaborations with foreign countries for comparisons would be made more efficient by having a **protocol** in place (*Jeffreys*).

Discussing needs for implementation, one stakeholder noted that **the infrastructure for such a database already exists**, “However, a policy is still required to overcome the issue of comparing law enforcement data against NGO data” (*Franklin*). The need to overcome this issue was noted by a second stakeholder who wrote, “The **primary barrier would be political**, as some countries have laws about privacy that prevent loss of control over law enforcement-sensitive information.” (*Franklin*). A third stakeholder echoed these concerns, writing “All governmental and non-governmental parties must agree to terms and **focus must be humanitarian, not criminal.**” (*Franklin*). Two stakeholders highlighted the need for a “**trusted intermediary**” (*Franklin*) to manage the database.

Of those who did not like the idea, two felt **there should be a single database for all comparisons**. One of these stakeholders (*Jeffreys*) felt that an **international DNA database for humanitarian comparison** could result in further **fragmented reporting** and preferred a single database with access permissions for different groups. A third stakeholder (*Jeffreys*) felt that more details about the concept were needed to identify potential challenges: how would informed consent be obtained from families for upload of existing FRS? Would the database be operated by a private or public laboratory (which would have implications for privacy of profiles shared internationally)? If operated by a government, which country would be responsible? Who would be responsible for ensuring all hits are dispositioned and not overlooked? These stakeholders also disliked the **need for funding** for such a database and the **high potential for misuse** if operated privately.

CBP could educate migrants on need for true identities

A federal agency stakeholder suggested that the Border Patrol could play a role in educating migrants on providing truthful information.

“We're getting better at educating our detainees on saying, "You need to provide truthful information because..." Back in the old days, a lot of detainees used to give false names and they would all say they are from Mexico because they didn't want to get deported back to their country and have to make that journey all the way back down again. They'd rather hit the border to Mexico and then make that short journey. So, now everyone's getting deported back to their home countries, so they are more likely to give correct information.” – *Jeffreys*

Education and Communication

We use the terms “education” and “communication” broadly to capture challenges around the need for better understanding of identification processes on a variety of topics across professional stakeholder groups and for families. These two terms are grouped together because education and communication are interlinked, especially in the missing migrants context where stakeholder groups have different experiences, perspectives, and expertise, and where there can be frequent turnover in key roles in organizations over time. Stakeholder discussion highlighted critical gaps in education and communication that hinder identifications. Some of these gaps were broad, such as an overarching lack of education on DNA identification processes. The need for education on DNA identification processes for professional stakeholders was raised. Communication between professional stakeholders, particularly between government and NGOs, also was discussed. Stakeholders highlighted inadequacies in how professionals communicate with families who are seeking missing family members and specifically those who are awaiting DNA identifications, especially in the context of long turnaround times for DNA identification. **Table 8** details the specific education and communication challenges extracted from the Forum discussions in order of the priority given to them by stakeholders in the post-Forum questionnaire. Solutions related to education and communication that were extracted from the Forum discussions are also listed, order determined by the study team. Priorities, challenges, solutions, and post-Forum questionnaire comments on solution viability are discussed in detail below.

Table 8. Education and communication challenges, priorities and solutions

Priority	Challenges
1	Long turn-around times for matches
2	Inadequate communication with families while investigations are ongoing
3	Long turn-around times for FRS collection
4	General education needed on the processes for DNA identifications
5	Inadequate communication with families following a match
6	Education needed for Justices of the Peace on processes for DNA identification
7	Education needed for consulates on processes for DNA identifications
8	Education needed for Border Patrol agents on processes for DNA identifications
9	Inadequate communication between governments and NGOs
10	Inadequate communication with NGOs following a match
Solutions	
	Educate JPs on UHR ID processes
	Educate LE on UHR ID processes
	Educate migrants on legal migration
	Family support systems could accompany rapid DNA
	Certain NGO-government partnerships are models
	Educate LE on NamUs

Education and communication priorities

Both the **Jeffreys** and **Franklin** groups acknowledged that long turnaround times and inadequate communication with families were top priorities in improving communication (see **Figure 23**). However, the importance of educating JPs on DNA identification processes was ranked 1st by the **Franklin** group and near last by the **Jeffreys** group. Conversely, the long turnaround times for FRS collecting and the general need for education on processes were ranked as 3rd and 4th by the **Jeffreys** group and near last by the **Franklin** group.

PRIORITIES: EDUCATION / COMMUNICATION	OVERALL	FRANKLIN	JEFFREYS
Long turn-around times for matches	1	3	1
Inadequate communication with families while investigations are ongoing	2	2	2
Long turn-around times for FRS collection	3	8	3
General education needed on the processes for DNA identifications	4	9	4
Inadequate communication with families following a match	5	4	5
Education needed for Justices of the Peace on processes for DNA identifications	6	1	9
Education needed for consulates on processes for DNA identifications	7	5	7
Education needed for Border Patrol agents on processes for DNA identifications	8	7	8
Inadequate communication between governments and NGOs	9	6	10
Inadequate communication with NGOs following a match	10	10	6

Figure 23. Education and communication priorities. Stated education and communication challenges emerging from the conversations during the Stakeholder Forums were grouped into categories, then stakeholders were asked to rank them from most to least important in the post-Forum questionnaire. *priorities colored dark green – highest ranked priority; light green – lowest ranked priority*

Education and communication challenges

Six of the stakeholders, three from each group (6/26, 23.1%), independently noted the challenge of long TATs on their notecards.

Long turn-around times for matches

A law enforcement stakeholder described the challenges they face when DNA identifications delay the identification process. This comment was during the discussion of whether rapid DNA analyses might be of value.

“One specific example is when I was searching for a specific individual. I made a recovery and it was nine months before I found out that wasn't him. So, that was just a few months ago, so I

need to go back out to the area and recover that whole area and expand my search. If I could've gotten the results from [name redacted] within a couple days or something like that, then I would have known that I could've been back out continuing on with that search. My answer's that it's very important.” – *Jeffreys*

A ME noted the slow processes for matches using fingerprints or other biometrics, not just DNA data.

“In the one case I did have that I looked at, that went to a medical examiner's office, they waited for DNA for like seven or eight months. Two fingerprints, and we knew who she was. So, if you have her ID and you have fingerprints, you just ask the country of origin to send you the prints so you can do an ID. But they waited seven months. I got involved later, through the FBI, but they didn't even know you could get the fingerprints from Central and South America. And they'll ship them, they'll send them to you by email, you can do a one-to-one ID, which makes it a week instead of seven months.” – *Jeffreys*

Inadequate communication with families while investigations are ongoing

A humanitarian organization representative (*Franklin*) noted on a notecard that a major challenge was difficulties “connecting family members with missing loved ones to resources across borders,” highlighting the cross-border communication challenges.

Long turn-around times for FRS collection

A medicolegal expert noted the difficulty in getting FRS collected using NGOs.

“We use [NGO redacted] a lot. Like I said, when we get a match or when we think we have a match, we can use them for collecting the family reference samples. It's just the last few years have been so busy that it could be three or four months before they even are able to go and collect the sample. But they've always told us, ‘We're just too busy.’” – *Jeffreys*

General education needed on the processes for DNA identifications

A medicolegal expert (*Jeffreys*) noted on their notecard the “fatigue in explaining what we do over and over and over again to just about everyone.” This note exemplifies the complexity of the challenges in identifications.

An anthropology expert commented on the confusion among agencies that DNA could be taken for a database before there is a presumed ID.

“Many agencies think or believe that they are either not allowed to or they are helping out the DNA labs by not submitting reference samples until there is a presumed ID. So they're waiting to be told "collect a sample for this family" rather than proactively collecting samples from families of the missing.” – *Franklin*

A DNA laboratory expert commented on the need to educate families and FRS collecting agents on from which family members DNA should be collected.

“[...] just having enough reference collected from the proper family members can have a huge impact on your success in obtaining the identification, you may have the correct family but if you don't have enough, or the proper relatives to get the data above threshold you could miss the identification [...]” – *Franklin*

A DNA laboratory expert also commented on the need to be prepared for communicating about sensitive information that might emerge from relationship testing.

“I also have had cases where a mom and dad came to identify their son and we took a sample and that's not the father. Around 23 years ago, that all stopped and now I take that information, it's gotta be safeguarded. I'm not going to ruin this family based on DNA or a forensic profile.” – *Jeffreys*

Inadequate communication with families following a match

A notecard from a migrant advocate noted the notification of identifications to families of deceased is unclear and inadequate. (*Franklin*)

Education needed for Justices of the Peace on processes for DNA identification

A medicolegal expert commented on the lack of training of JPs in how to handle UHR.

“[...] a lot of the JPs didn't even know that you had to send the DNA to [institution redacted] because it's not in their statute, it's in another statute. It's not under the death investigation statute. They weren't aware, at all, of all the things they were supposed to do and part of the confusion gets when I hear other organizations talk as if there was another man who used to do autopsies where I am, and they were saying that funeral home should have been the one responsible to send everything up and do all of this stuff for the DNA.” – *Jeffreys*

A JP noted their inadequate information upon being elected on how to manage death investigations.

“[...] I had no idea all this was available. I really didn't.” – *Jeffreys*

Education needed for consulates on processes for DNA identifications

A database expert (*Jeffreys*) noted on their notecard that consular offices are “unaware of [the] ability to submit FRS to CODIS.”

A medicolegal expert (*Jeffreys*) also noted on their notecard that consulates “only collect DNA on one family member” when multiple family members are available, exemplifying the lack of knowledge among some consulates of the sources of FRS needed for positive DNA identifications.

“We get most of our DNA samples from the consulates and we just tell the family to make it to any consulate where they are. In [two states redacted], wherever they are. And that's worked. They've went. The only problem that we have with the consulates is three people will show up and they will swab one.” – *Jeffreys*

Education needed for Border Patrol agents on processes for DNA identifications

A federal agency stakeholder noted the challenge in training the staff that manages missing migrants.

“Before coming to this conference here, I had to Google each acronym just to see what's what, and I still don't have a complete understanding of what tools that you all have to offer and I don't know if you understand what I have to offer, but I think these types of things are great so we can all work together. [...] No, this is all about us getting together and really solving these problems, so if this is what we need to educate ourselves better with what's out there.” – *Jeffreys*

A medicolegal expert highlighted that they routinely train Border Patrol.

“[...] with the turnaround with border patrol, like you said, I usually give it to border patrol about every two years. Because one thing we don't want to do is send out false information to the JP and say this is who it is and then we haven't checked with the consulate of Mexico to make sure that's who that is and now we have got a JP changing the name, and then he's mad at me because we are making him change it again.” – *Jeffreys*

Inadequate communication between governments and NGOs

An expert with a humanitarian organization described the challenges NGOs have in accessing information that governments hold.

“I think it [is] the lack of the restrictions that NGO has in terms of getting information from government because it's always a question of government to government give information even though we [NGOs] may be on a level of discovering or assisting in that identification that it closes off NGOs.” – *Franklin*

A law enforcement stakeholder also commented on the lack of cooperation and how the tensions adversely affect the investigations.

“I guess, maybe, since I am in law enforcement, all we do is search and recover. I reached out to [NGO redacted] a couple years ago, and I was briskly rebuffed because I was law enforcement. Why? I don't know. But I haven't talked to them since then. There's an NGO in California that does searches. They've negatively impacted my ability to do my job inside [county redacted].” – *Jeffreys*

A federal agency stakeholder (*Jeffreys*) noted on a note card the challenge of communicating successful identifications back to Border Patrol, with records long remaining “John Does” even though a DNA identification had been made.

Inadequate communication with NGOs following a match

A humanitarian organization commented on how NGOs might receive information from government agencies depending on whether they have established relationships.

“So there's somewhat of a gap there in terms of the participation of NGOs but it depends, I think also, on the relationship that are established on a regional basis in terms of some of the [...] countries and what has been developed strongly by [NGO name redacted] in terms of the relationship with government.” – *Franklin*

Education and communication solutions

Solutions to lack challenges in education and communication were not tested in the post-Forum questionnaire.

Educate JPs on UHR ID processes

A JP delineated the opportunity to provide missing migrant training to the newly elected JPs since they receive materials during training.

“We go to three weeks of training and they give us 1,000 to 2,000 pages to read, and there is precious little in there about telling me, almost nothing actually, send the bodies to the [institution redacted], that's what it says. All right? And that's all they tell me about identifying a missing migrant, or anybody for that matter.” – *Jeffreys*

Educate LE on UHR ID processes

A medicolegal advocate noted the need for education of LE agencies across.

“The education is big. [...] But there needs to be education for the police too. The law enforcement agencies all along the border, there needs to be some way to be able to reach out to them in conferences. But, I can tell you when I went to [city redacted] and gave the talk, most people left. They didn't want to hear about border crossers, or how to identify them. I would say half the room left and said they already knew it.” – *Jeffreys*

Educate migrants on legal migration

A federal agency stakeholder noted the importance of encouraging legal migration in mitigating the number of migrant deaths.

“Maybe educating [the migrants] on, "Hey there's ways to do this legally." The education part, it would have to be a mass group from pueblitos, ranchitos and speaking to them personally.” – *Jeffreys*

Family support systems could accompany rapid DNA

A migrant advocate discussed in the session the complicated process of post-testing communication with families, especially where DNA data might reveal misattributed parentage or some other complication.

“I would add to that NGOs that have long-term experience in informing families will make identifications without Rapid DNA. Although this is a really complicated process that necessarily involves a lot of people and a lot of support for the families. That would need to be taken into account if presumably that was where the informant within a few hours as you were saying how would you be prepared to do so and be sure the necessary supports were in place.” – *Franklin*

Certain NGO-government partnerships are models

A humanitarian organization representative highlighted the value of prior NGO efforts in evaluating processes for improving partnerships.

“[...] I think NGOs also can help to sort of raise the voices of the families that are impacted across borders and they can take information and viewpoints across borders in a way that is sometimes difficult for US based government entities to do in the other direction. I have also seen successes with NGOs securing funding, actually we can talk about mechanisms and processes but funding as was acknowledged before is a part of making DNA comparisons effective and realistic for solving these issues and I think NGOs also secured funding to fill in gaps in funding that were sometimes not being filled in other ways or entities.” – *Franklin*

Educate LE on NamUs

A medicolegal expert highlighted the importance of NamUs in coordinating death investigations.

“[...] if you become a NamUs user, you can see the law enforcement page as law enforcement and what you've got that you'll never lose and should never change is that police report number. And you can track your cases through NamUs. I mean the UP site, should you want to do that. That would be one way to use NamUs a month later or a year later, ‘Oh my case is still unidentified.’ Or, ‘Oh, if you're a user at law enforcement level, you can read the blow by blow if anything has happened in the intervening months, you can read about your case?’. – *Jeffreys*

When asked in the post-Forum questionnaire “In what ways could NamUs be improved?”, respondents outlined the possibility of laws or policies to require NamUs entries and the need for education and communication of the utility of NamUs (**Table 8**).

Table 9. Open-ended answers to “In what ways could NamUs be improved?”

RESPONDANT	ANSWER
International humanitarian org	Establish a policy to share with international organizations if no national identification is made.
Migrant family advocate	Bilingual staffing, allow NGOs with working relationships with medical examiners to manage MP data.
International humanitarian organization	Ensure long-term funding. Expand outside of the U.S. to tackle the problem of missing/unidentified migrants who cross international borders (i.e., sensitization outside U.S., permit entry of MP cases outside U.S.). Include a "probable/known missing migrant" (aka UBC) category in order to account for migrants, along with providing guidance on how to implement biocultural approach and hypotheses of group affiliation (LOCATION REDACTED example). Pass federal legislation to make entry of MP/UP cases mandatory across the U.S.
Forensic laboratory	Better training for jurisdictions not utilizing it enough.
Forensic laboratory	Greater use and awareness.
Domestic humanitarian organization	It <i>[sic]</i> should be mandated by law that all unidentified recovered bodies and missing cases be entered into NamUs
Database expert	Significantly more funding for forensic services and tribal cases. Regardless of whether an agency is working the case, mandate the input of case information so NamUs staff can assist and other agencies in other states can see the open case information which may impact one of their open cases. NamUs use should be legislatively required for MP and UP cases. Through legislation get NamUs NCIC privileges. Advocate for NamUs to get additional funds for international assistance.
International humanitarian organization	More outreach to the general public for input and identifying missing person cases that aren't filed there.
Database expert	The program as a whole requires more funding than is currently allocated by OJP/DOJ/NIJ in order to effectively meet the needs of stakeholders with not just database technology, but also with forensic services, investigative support, and victim services. In regard specifically to the NamUs system, enhancements could be made to provide CBP and other agencies with more internal case management and communication tools. There is also opportunity to provide NamUs-like technology to other countries that share cases with the U.S., such as Mexico, Guatemala, El Salvador, etc. These would be separate systems not directly connected to NamUs, but if online like NamUs, they could be searched by anyone for potential matches to U.S. missing and unidentified cases.
Forensic anthropologist	Allow entry of MP cases by foreign agencies without requiring a U.S. law enforcement agency to certify the case.
Medical examiner	Publicize it south of the border.

UBC = *unidentified border-crosser*

Funding

We use funding to describe the financial resources needed to support all the steps in the DNA identification process, including FRS collection and processing and UHR recovery, processing, and storage, as well as the personnel, buildings, and equipment that support these steps. Stakeholders raised a lack of funding across all of the steps of the DNA identification process, at different times focusing on the need for funding for UHR recovery and exhumations, processing, and storage; FRS collection and processing; and laboratories to manage DNA data. **Table 10** details the specific funding challenges extracted from the Forum discussions in order of the priority given to them by stakeholders in the post-Forum questionnaire. Solutions related to funding that were extracted from the Forum discussions are also listed, order determined by the study team. Priorities, challenges, solutions, and post-Forum questionnaire comments on solution viability are discussed in detail below.

Table 10. Funding challenges, priorities and solutions

Priority	Challenges
1	Not enough funding for UHR recoveries
2	Not enough funding for UHR processing
3	Not enough funding for FRS collection
4	Not enough funding for FRS processing
5	Not enough funding for UHR exhumations
6	Not enough funding for laboratories
7	Not enough funding for UHR storage
Solutions	
Rapid DNA could be in a centralized lab	

Funding priorities

The two groups were consistent in ranking the importance of funding for UHR recovery and processing (see **Figure 24**), but differed in ranking the importance of funding for FRS collecting and laboratories managing the DNA data. The **Jeffreys** group ranked funding for DNA laboratories as the top priority; whereas the **Franklin** group ranked it 6th. The **Franklin** group prioritized FRS collection funding as the 2nd priority; whereas the **Jeffreys** group ranked it 6th.

PRIORITIES: FUNDING	OVERALL	FRANKLIN	JEFFREYS
Not enough funding for UHR recoveries	1	1	2
Not enough funding for UHR processing	2	3	3
Not enough funding for FRS collection	3	2	6
Not enough funding for FRS processing	4	4	4
Not enough funding for UHR exhumations	5	5	5
Not enough funding for laboratories	6	6	1
Not enough funding for UHR storage	7	7	7

Figure 24. Funding priorities. Stated funding challenges emerging from the conversations during the Stakeholder Forums were grouped into categories, then stakeholders were asked to rank them from most to least important in the post-Forum questionnaire. *priorities colored dark green – highest ranked priority; light green – lowest ranked priority*

Funding challenges

On the written notecards for overall challenges, over a third (10/26, 38.5%) of respondents noted that funding was a challenge. Some of the responses specified for what funding is needed.

Not enough funding for UHR recoveries

In discussion of gaps in the effectiveness of the medicolegal system for investigating migrant deaths, a database expert noted the importance of funding for local systems to recover remains.

“And that reliable funding is implemented so whether you live in a region with a lot of acreage that you can get one of those three-wheelers to get to that person or whether you can retain that body for a certain number of weeks in a refrigerator before you inter them. I think all of those things have to be taken into account to ensure that, whether you are an American citizen or somebody of foreign citizenship, that you are treated with the same respect and that your body can eventually find its way home.” – *Jeffreys*

This expert also noted the lack of funding from the civil and commercial entities.

“[...] apparently there is a complete shortage of body bags. I've heard people say, ‘We don't even have a bag to put the remains in.’ They're using Hefty's, which I think is appalling. And so, I know this sounds trite, but if, for those of you who watch TV, like reality TV shows, you see all of these people like Ellen or Oprah going, ‘Target gave us \$10,000 to help you do something for no reason.’ I feel like we as a community should be able to reach out to these really big entities that have charitable, pro bono kind of giving hearts, and say, ‘Can you buy us a million body

bags, because we should be able to process the dead like a first world country. We are like hashtag don't be shameful'.” – *Jeffreys*

Not enough funding for UHR processing

A medicolegal expert noted the need for sustainable funds to support UHR processing at the local level.

“[...] I only have two autopsy techs, paid for by the county, my administrator, and that's it. There's three of us, one me, working to ID 65 people a year and when I tell their opinion they are like, you only do 300 cases a year, yet one John Doe will take me a month to try to ID.” – *Jeffreys*

Not enough funding for FRS collection

A migrant advocated noted that there is sufficient outreach efforts among humanitarian organizations, but that there is a backlog in managing the outreach since there isn't sufficient funding for the outreach efforts.

“I don't think that what we need is outreach. The family groups in this room, we're inundated. Usually there's a backlog so there's too many families calling these small groups [...]” – *Franklin*

A JP in attendance noted that the funding should target education of families to come forward to provide a FRS.

“If we can educate the families to come forward with their missing and supply a DNA sample, that's going to be, in my opinion, rudimentary to go forward.” – *Jeffreys*

Not enough funding for FRS processing

One laboratory expert noted the importance of grant funding to alleviate the costs to consulates that manage the FRS DNA testing.

“Going back to the funding and the timeline, I'm not suggesting this is where the funding should come from but from experience where I did see more expeditious testing and matching was when there was funding coming from the consulate in [place redacted]. When that funding was pulled it had a significant impact. And most of those cases were presumptive identifications where they were being directly compared to family references in real-time, often times within a month in which they were collected and those were reported back within a 30-day turnaround

time. [...] but again that was for presumptive identifications not for [...] blind matching in the database those tend to rely more heavily on grant funding which has also significantly been decreased. But when that funding was available to the consulate I think that did provide an avenue for a quick turnaround on testing essentially with presumptive identifications.” – *Franklin*

Not enough funding for UHR exhumations

While brainstorming solutions with unlimited resources, a database expert advocated for additional exhumations (as noted above in “UHR recovery and processing” section) and identification driven by DNA data.

“We see, even in cases where there is a really strong potential match, the agency has no funding to do an exhumation to identify.” – *Jeffreys*

Not enough funding for laboratories

On a notecard, a database expert noted that one of the primary challenges is the “inability to expand staff, technology, [and] equipment.” – *Jeffreys*

A database stakeholder noted the importance of funding laboratories.

“[...] with unlimited money, you would have access to robotics and wells and mito and STR and databasing units that do nothing all day but run these samples.” – *Jeffreys*

Not enough funding for UHR storage

A member of a humanitarian organization noted the importance of prioritizing funds for storage, especially if there are not funds for processing the UHR for identification.

“So for the effectiveness of [state redacted] might be important to mention that all the remains are sampled and collected and stored if they don't have funds to process. So that assures that the remains are not being buried or cremated without proper analysis and storage of the sample because it goes to a private lab it takes a long time to find the funds for that.” – *Franklin*

One of the *Jeffreys* JPs in attendance noted on their notecard as a specific problem that “storage pending disposition [of an unidentified person is] \$200/day” – *Jeffreys*

Funding solutions

Solutions to lack for funding were not tested in the post-Forum questionnaire. Often, evaluation of solutions involved discussion of the need for funding and how it might be secured.

SOLUTION VIABILITY ANALYSES

The challenge priorities and solution viability described here emerged from analysis of the feedback of the 15 stakeholders in the post-Forum questionnaire. Consensus between stakeholder groupings on which challenges are the greatest priorities was clear for some categories. The findings for the solutions did not have statistical power to determine consensus, but a qualitative review of the responses help to guide conversations on which solutions might be viable based on the **consensus** of the respondents and which might require additional considerations.

High-level consensus solutions

Increase exhumations of UHR

As shown in **Figure 11**, the majority of stakeholders agreed that there was a need for expanded efforts and resources to support exhumations of unidentified persons.

Suggestions included:

- Enforcement of existing laws for JPs, funeral homes, and cemeteries to prevent inappropriate burials and/or cremations
- Centralization or systemization of exhumation processes
- Establishing and securing federal or local grants to enable exhumations including
 - surveying and mapping graves
 - exhumations
 - examination of remains
 - sampling, analysis, submission, and testing by forensic anthropology and crime laboratories
- Improved coordination among funeral homes, medical examiners, and forensic anthropologists, which might require additional funding or staff

One stakeholder (*Franklin*) thought there was work to be done to identify who is responsible for locating and compiling information on graves. While two stakeholders highlighted the need for the creation of a national agency, another highlighted how NamUS already enables collaboration.

LE units should take any missing persons reports

All respondents agreed that LE units should accept missing persons reports outside of their jurisdictions (see **Figure 7**).

Suggestions included:

- More use of or mandated use of NamUs
- Creation of a MP reporting category that allows LE to receive and publish a report without becoming the investigating agency
- Cross-reference MP reports across jurisdictions
- Include in MP reports suspected location of disappearance and the families' location

One stakeholder noted that the “biggest hurdle” is that the agency that takes the report is expected to be the investigating agency; as such, one stakeholder suggested that national law is needed to ensure acceptance of missing persons reports from families outside their jurisdiction as state and local laws are inconsistent. Another stakeholder also suggested that a national mandate could accomplish this, but first suggested individual state laws, citing as an example Patricia's Law in NJ.

Several stakeholders suggested forms of data collection that might improve collaboration and outcomes. A stakeholder suggested creating a category that allows LE to receive and publish a report without becoming the investigating agency. Another stakeholder stated, “It is important that the opportunity is not lost to capture information from families because of confusion on where the report should be made. The reporting system should allow for cross-referencing in order to remove duplicate reports for the same individual while still ensuring that the information is captured and available for comparison against all states' UHR records. Relevant information such as suspected location of disappearance and families' location would assist in the investigation's focus.”

Develop a complete manifest of missing migrants

Nearly all of the respondents agreed that developing a master manifest specifically of missing migrants would be a great step toward consolidation of records. However, there was some split among viewpoints on how easy this would be to implement (see **Figure 5**).

Suggestions included:

- Improvements to NamUS
 - Add new designations or categories specific to migrants
 - Create policies and hire staff to vet cases and remove duplicate cases

Funding was highlighted as a need, with two stakeholders suggesting a national agency – either an agency to advocate for resources and coordinate stakeholders or a “a national, federally-funded missing persons agency focused on the humanitarian identification of missing/unidentified persons.”

Four stakeholders emphasized the importance of collaboration between agencies in missing persons investigations. This included collaboration between law enforcement agencies in jurisdictions relevant to the case; and between law enforcement, medical examiners, consulates, and NGOs. This collaboration was framed as jurisdictional, regional, national and even, by one stakeholder, international. Two further stakeholders found that “simple follow-through” and communication were “key” and improved testing and results.

Other stakeholders’ suggestions might require more consideration, such as strengthening national and international collaboration and communications, for instance to build data sharing systems to enable this.

Systematize a UHR recovery program

Similar to developing master manifest of missing migrants, nearly all of the respondents agreed that there should be a cohesive, coordinated UHR recovery program. A majority, however, noted that this would not be easy to implement (see **Figure 10**).

Suggestions included:

- Set best practices that could lead to standardized recovery processes. One suggestion was to treat recovery sites as crime scenes to maximize details of recovery and documentation.
- Work with civilian search and recovery groups to provide training, and facilitate communication.
- Document where jurisdictional policies conflict, potentially disrupting cross-jurisdictional standardization.

Establishing a U.S.-based centralized missing persons agency could facilitate a systemized recovery program but would require significant buy-in and resources. This suggestion consistently came from one stakeholder; further research would be required to see if other stakeholders would agree to this model.

Set standards for UHR handling

There was very strong support that standards are needed for UHR handling, with only one person disagreeing. However, a majority of respondents expressed that this would be difficult to implement (see **Figure 12**).

Suggestions included:

- Align standards with humanitarian priorities with input from experts across jurisdictions.
- Request input across jurisdictions/experts to achieve consensus on a set of standards
- Seek funding for training and education of the next generation of experts so that they can meet standards, as well as funding for communication and monitoring of stakeholders' progress.

Some stakeholders emphasized that while setting standards might be easy, enforcement would be difficult. One stakeholder referenced a best practices guide already in existence. Other stakeholders noted the challenge of setting standards to which all stakeholder groups involved in processing might agree. While protocols could be standardized, resources differ region to region and agency to agency, making implementation challenging. Implementation would require significant funding to address the lack of facilities, expertise, and resources to meet standards, especially in geographically large and understaffed jurisdictions. Implementation would also require more consideration of the best strategies to ensure compliance. Stakeholders anticipated resistance from certain stakeholder groups to new standards and trainings, noting that they might need to be motivated by funding and that adoption of new standards would be a slow process.

Dedicated UHR facilities

A majority of respondents agreed that dedicated UHR facilities could help with the standardization needed in managing UHR (see **Figure 13**). However, respondents were split as to whether this would be a challenge to implement.

Suggestions included:

- Coordinate with academic forensic anthropologists, particularly for skeletal remains.
- Establish dedicated burial grounds so remains can have proper burials in cemeteries and cremation can be avoided.
- Coordinate funding across states to allow pooling of resources.

Stakeholders noted that political will and funding would have to be mustered to do this. One stakeholder was adamant that remains should not be buried or cremated, however. Dedicated UHR facilities that can handle both fleshed and skeletal remains, particularly one or several central

facilities were seen as long-term goals by stakeholders. They would require significant resources to 1) overcome the uneven infrastructure of jurisdictions; 2) gain support of medicolegal authorities. Further research and consideration would also be needed around 1) how such facilities might increase costs for cases (transport and storage); 2) how or whether they might be compatible with chain of custody requirements and criminal investigations (which involves an overarching debate about whether these cases should always be treated as criminal investigations); as well as 3) protocols to help make decisions about when remains can be sent to the facility and when they should remain in jurisdiction and 4) oversight mechanisms.

Hire culturally appropriate and trauma-experienced FRS collection workforce

Generally, stakeholders expressed agreement that the use of trauma-experienced and/or culturally appropriate workforce would improve families' trust in the FRS collection process (see **Figures 18 and 19**).

Stakeholders were in support of the idea and mainly emphasized the challenge of providing training or making such staff available across all agencies. Stakeholders highlighted a number of existing training models but highlighted as a barrier the need to place staff across agencies due to lack of funding and other resources. One stakeholder disliked the idea of such staff being present among law enforcement because it contradicts their mandate. There might not be overall consensus around which organizations should engage in trauma-informed care.

Rapid DNA could help build trust with families

The exploratory questions on the use of rapid DNA to assist with FRS processing yielded significant hope among stakeholders (see **Figure 16**). A few of the responses were concerned for the ease of establishing rapid DNA.

Overall, stakeholders framed wide and current use as premature due to concerns around cost, data management policies, and data protection. They also expressed concern that the technology had to evolve and concern over potential misuse by non-technical users. The stakeholder who directly opposed the idea expressed strong concerns that its use would detract from progress in improving data management and would not improve identifications overall. Wide implementation would require funding and further consideration of the policy framework.

Establish a separate database at the international level to manage cross-border humanitarian comparisons

A significant number of respondents agreed with the need to have an international and standardized database for DNA sharing among nations (see **Figure 22**). However, a few of the LE representatives strongly disliked this suggestion and those respondents that liked the idea cautioned that implementation might be a challenge. While stakeholders highlighted that there are some systems already in place that might be improved or made more efficient given that political barriers can be overcome, more research and planning would be needed, as highlighted by one stakeholder, to develop a new international database for this purpose.

Limited consensus solutions

The other solutions arising during the Stakeholder Forums were met with disagreement on whether they were good ideas and whether the ideas were achievable. These ideas require additional discussion, research, and consideration.

Less agreed upon solution ideas included:

- Cooperate with public to investigate missing or unidentified persons (see **Figure 6**)
- Migrants could pre-emptively bank DNA (see **Figure 8**)
- Enable trained third parties to collect FRS (see **Figure 17**)

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APPENDICES

Appendix 1 – Acronyms

AABB	American Association of Blood Banks
CBP	U.S. Customs and Border Protection
CODIS	Combined DNA Index System
FBI	Federal Bureau of Investigation
FRS	Family Reference Sample
ICMP	International Commission on Missing Persons
ICRC	International Committee of the Red Cross
ID	Identification
IGG	Investigative Genetic Genealogy
JP	Justice of the Peace
LE	Law Enforcement
ME	Medical Examiner
NGO	Non-Governmental Organization
SANE	Sexual Assault Nurse Examiner
SART	Sexual Assault Response Team
TAT	Turn-Around Time
UHR	Unidentified Human Remains

Appendix 2 – Forum Pre-session Questionnaire

DEMOGRAPHICS and PRE-SESSION QUESTIONNAIRE Supplement for stakeholder forum participants

Title of Research Project:
DNA in Immigration

1. How old are you? [FILL IN]
2. With which group do you most closely identify?
 - a. American Indian or Native Alaskan
 - b. Black, African, or African American
 - c. East Asian
 - d. Hispanic or Latino
 - e. Native Hawaiian or other Pacific Islander
 - f. South Asian
 - g. Southeast Asian
 - h. White, European, or European American
 - i. Other [FILL IN]
3. What is your country of origin? [FILL IN]
4. What is your native language?
 - a. English
 - b. Spanish
 - c. Other [FILL IN]
5. What language do you usually speak with your friends?
 - a. English
 - b. Spanish
 - c. Other [FILL IN]
6. I am a member of [select all that apply] [random]
 - a. Law enforcement agency
 - b. US government agency
 - c. Non-US government agency
 - d. CODIS laboratory
 - e. CODIS database administrator
 - f. NamUs database administrator
 - g. University
 - h. Non-governmental organization (NGO)
 - i. DNA laboratory (non-CODIS)
 - j. International organization
 - k. Other [FILL IN]
7. I consider my role to be [select all that apply]
 - a. Academic
 - b. Researcher
 - c. Administrator
 - d. Faculty
 - e. Director
 - f. Staff
 - g. Student/Trainee
8. What is your highest level of education?
 - a. Some elementary school
 - b. Some middle school
 - c. Some high school
 - d. Completed high school

- e. Some college
- f. Completed college
- g. Graduate or professional school
- 9. Agree or disagree with the following statements [FIVE POINT SCALE] [Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly Agree]
 - a. Unidentified sample processes
 - i. Samples should always be sent to a CODIS laboratory
 - ii. Samples should always be sent to a private laboratory
 - b. FRS sample collection processes
 - i. Samples should only be collected by a LE person
 - ii. Samples should also be collected by non-LE persons
 - iii. Family members need more opportunities to provide FRS
 - c. Legal parameters of CODIS
 - i. CODIS should permit sharing of unidentified DNA data outside of CODIS
 - ii. CODIS should permit FRS DNA data collected by non-LE persons
 - iii. CODIS should permit sharing of match reports of migrants to NGOs
 - d. DNA data storage and sharing
 - i. Private laboratories do not have sufficient oversight for DNA databases
 - ii. Maintaining DNA data in private databases is not sustainable long-term
 - e. DNA sample analyses and DNA data matching processes
 - i. DNA testing of unidentified remains takes too long
 - ii. DNA matches from CODIS take too long

Appendix 3 – Forum Discussion Guide

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DNA in Immigration: Missing Migrants Stakeholder Forum

STAKEHOLDER FORUM DISCUSSION GUIDE – MISSING MIGRANTS

Title of Research Project:
DNA in Immigration

Principal Investigator:
Sara H Katsanis

Facilitator:
Sara H Katsanis

Note-taker:
Diana Madden

[**SPOKEN TEXT** in BLUE; **INSTRUCTIONAL TEXT** in BLACK; **PARTICIPANT RESPONSE DEVICE QUESTIONS** in GREEN]

Materials and supplies

- ☐ Consent forms (one copy for each participant provided prior to session)
- ☐ Pre-session questionnaire
- ☐ Alias name tents/tags
- ☐ Pads & Pencils for each participant
- ☐ Focus Group Discussion Guide for Facilitator
- ☐ 2 recording devices
- ☐ Batteries for recording device
- ☐ Participant response devices
- ☐ Timer
- ☐ Talking items
- ☐ Notebook for note-taking
- ☐ Notecards
- ☐ Refreshments

GUIDED DISCUSSION

Introduction of study team

Introduce the facilitator (SHK) and the note-taker (DM) and send the demographic questions around to the group while you are introducing the focus group.

We are here because we believe you have valuable insight and expertise that can help us learn more about how to improve identifications of missing migrants found along the US-Mexico border. Before going on, we want to inform you about what is going to happen in this next two hours so you can know if you want to stay and participate in our group discussion.

Consent process

Consent forms for focus group participants are provided in advance to all those eligible and interested in participating.

Thank you for agreeing to be here. We are interested to hear your opinions on how DNA is used to identify unidentified persons. You were invited because you are a key expert or representative of your

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stakeholder group. What we call a “stakeholder group” in terms of missing migrants is a group who is key to the success of identifying missing migrants. In this session, we have representatives of [NAME THEM]

- ☐ The purpose of this study is to hear your thoughts on how DNA is currently used to identify migrants’ remains. We hope to learn things that we can use to improve policies on the uses of DNA and how DNA data is shared.
- ☐ What you tell us today is completely confidential, and we will not associate your actual name or title with anything you say today. We have distributed fake nametags for each of you. This way, you can speak freely and not be worried about your true name being connected to anything you say. We hope this makes you feel comfortable to speak openly.
- ☐ We will record this session so that we can make sure to capture the thoughts, opinions, and ideas we hear from the group. The recordings will be destroyed as soon as they are transcribed, or made into a written format.
- ☐ You may refuse to answer any question or leave the session at any time. Your participation or decision not to participate will not have any negative consequences on you.
- ☐ What is said in this room stays here. We want you to feel comfortable sharing when sensitive topics come up. We understand how important it is that what you say is kept private and confidential. We ask all of you to respect each other’s confidentiality. After you leave here today, please do not share comments made here with others.
- ☐ If you have any questions after you have completed the session, you can always contact a study team member like us. Our phone numbers and email addresses are on the consent form in case you want to talk to me about this session or have questions about being here.

Request participants to sign the consent forms.

Logistics

Explain that the stakeholder forum will operate like a focus group.

- ☐ We will not lead the discussion – we want to learn from you (positive and negative)
- ☐ Try to use your “fake” name before speaking
- ☐ Use the talking prompt to show an interest in speaking
- ☐ Not trying to achieve consensus, we’re gathering information
- ☐ We will use response devices to gather data
- ☐ No virtue in long lists: we’re looking for priorities
- ☐ Session will last about two hours
- ☐ Feel free to move around
- ☐ Where is the bathroom? Exit?
- ☐ Help yourself to refreshments

Ground rules

- ☐ We want you to do the talking. We would like everyone to participate. We might call on you if we haven’t heard from you in a while.
- ☐ We will use these talking items in order to facilitate the conversation and avoid cross talk. If you have something to contribute to the conversation, take one of the items and the facilitator will know that you are ready to speak.

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- ☐ We ask you to limit your thoughts to 2 minutes. We want everyone to contribute and we need to be mindful of time.
- ☐ There are no right or wrong answers. Every person's experiences and opinions are important.
- ☐ Speak up whether you agree or disagree. Everyone's opinions are important and we want to hear them. That said, please try not to interrupt one another. If you have something you want to say immediately, take one of the talking prompts.
- ☐ Also, please avoid side conversations. We will do our best to call on every participant that would like to share their thoughts.
- ☐ We will alternate discussion questions with participant response questions on the devices that we have given you.
- ☐ We are here today to talk through the policy and infrastructure challenges and potential solutions. There are, of course, societal challenges as well, like discrimination, hate, stigmatization, and funding. But we will not focus on these issues, only those that could perhaps be affected with policy or infrastructure change.
- ☐ Hate speech does not have a place in this room. Please check your language when talking about migrants. Let's be respectful of one another.
- ☐ Turn off your cell phones please!

[TURN ON AUDIO RECORDERS]

Ask the group if there are any questions before we get started, and address those questions.

Thanks for your patience, we are ready to begin. We have eight questions for you, then, if you have questions for us, we are happy to answer them at the end of our time here today.

Most of you are well aware of the deaths at the US-Mexico border, and are in some way working towards identifying human remains and to alleviate the harm on the families involved.

Engagement

Identifications of human remains are different in Texas, Arizona, and California.

Device question 1. Which state is the best model? [MULTIPLE CHOICE] [Texas, Arizona, California, none of these]

Device question 2. Which state is the worst model? [MULTIPLE CHOICE] [Texas, Arizona, California, none of these]

1. What are some positive outcomes of the Arizona approach? Of the Texas approach? Of the California approach? What are some aspects where one region might benefit from the approaches in another region?

Device question 3. How effective has law enforcement been in identifying deceased migrants? [FIVE POINT SCALE] [Very effective, effective, Neither effective nor ineffective, Ineffective, Very ineffective]

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Device question 4. **How effective has law enforcement been in working with migrant families to gather family reference samples?** [FIVE POINT SCALE] [Very effective, effective, Neither effective nor ineffective, Ineffective, Very ineffective]

2. **How do you feel that law enforcement has been successful in improving identifications? What are some gaps in processes that could be improved?**

Device question 5. **How effective have NGOs been in identifying deceased migrants?** [FIVE POINT SCALE] [Very effective, effective, Neither effective nor ineffective, Ineffective, Very ineffective]

Device question 6. **How effective have NGOs been in working with migrant families to gather family reference samples?** [FIVE POINT SCALE] [Very effective, effective, Neither effective nor ineffective, Ineffective, Very ineffective]

3. **How do you feel that NGOs have been successful in improving identifications? What are some gaps in processes that could be improved?**

Exploration

Hand out notecards to participants.

Using the notecards you received, let's create a list, from small things to large issues.

4. **In 10-15 words or fewer, what are the specific challenges you have experienced in using DNA to identify migrants?**

Collect notecards. Read cards and lead discussion on the importance of each.

Device question 7. **Agree or disagree: DNA samples from unidentified remains samples should only be sent to CODIS laboratories for analysis.** [FIVE POINT SCALE] [Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly Agree]

5. **Should DNA data from unidentified remains be shared outside of LE?** FOR THOSE SAYING YES: **What needs to change in order to make this possible?** FOR THOSE SAYING NO: **What is the potential harm?**

Device question 8. **Agree or disagree: Family reference samples should only be collected by law enforcement agents.** [FIVE POINT SCALE] [Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly Agree]

6. **Should family reference samples only be collected by law enforcement agents?** FOR THOSE SAYING NO: **What needs to change in order to make this possible?** FOR THOSE SAYING YES: **What is the potential harm?**

Rapid DNA instruments can process known reference samples for standard short tandem repeats (STRs) within hours. Some instruments might be effective for processing STRs from human remains as well.

Device question 9. **Agree or disagree: Rapid DNA instrumentation could be advantageous for processing family reference samples.** [FIVE POINT SCALE] [Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly Agree]

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Device question 10. Agree or disagree: Rapid DNA instrumentation would be advantageous for processing human remains. [FIVE POINT SCALE] [Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly Agree]

7. Should rapid DNA instrumentation be integrated into missing migrant identifications? FOR THOSE SAYING NO: What is the potential harm? FOR THOSE SAYING YES: How could the instrumentation be best used?

Since 2018 investigative genetic genealogy has been useful in identifying suspects in criminal cases, and identifying human remains. This approach involves genotyping human remains for thousands of single nucleotide polymorphisms (SNPs) rather than the standard short tandem repeats (STRs). These data can then be compared to genealogy databases to look for distant relatives.

Device question 11. Agree or disagree: Investigative genetic genealogy approaches could be effective for identifying missing migrants. [FIVE POINT SCALE] [Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly Agree]

8. Should investigative genetic genealogy be considered for investigating identities of decedents? FOR THOSE SAYING NO: What is the potential harm? FOR THOSE SAYING YES: How could the process be developed?

In 2020, CODIS has expanded to include broader DNA collection from migrant detainees. These data will be in the offender index of CODIS, useful for identifying criminals, and potentially useful for identifying human remains among migrants who have previously crossed the border.

Device question 12. Agree or disagree: Expansion of CODIS to include migrant detainees is important for improving missing migrant identification efforts. [FIVE POINT SCALE] [Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly Agree]

9. What are the potential advantages and disadvantages of expanding CODIS for migrant identifications?

Exit

We all know that the issues discussed today are challenging. Laws might need to be changed. Egos might need to be checked. But we all care enough to be here today, so let's talk about solutions.

10. With unlimited resources, what could be done to improve the current situation?

11. Given the realistic limits on resources, what steps can be taken in the next two years?

That concludes our session. Thank you so much for coming and sharing your thoughts and opinions with us. If you have additional information that you did not get to say today, please feel free to call or email one of us.

Appendix 4 – Qualtrics post-Forum questionnaire

DNA Identification of Missing Migrants Stakeholder Forums *Post-Forum Questionnaire*

Survey coding notes in BLUE

Thank you for agreeing to complete this questionnaire. As a reminder, please keep conversations from the Stakeholder Forum confidential. You may contact Sara Katsanis at skatsanis@luriechildrens.org for any information about this study.

Please enter your Code Name provided at the Stakeholder Forum in March 2020 [\[FILL IN\]](#)

[\[NEXT SCREEN\]](#)

The DNA Identification of Missing Migrants Symposium and Stakeholder Forums were held March 4-5, 2020, in San Marcos, Texas. We envisioned the Symposium as an opportunity to bring together diverse stakeholders to share their knowledge and experiences of the use of DNA testing to identify missing migrants and to brainstorm actionable policy options to address DNA identification challenges. The Symposium was open to all attendees to provide an opportunity for information exchange and discussion. Two Stakeholder Forums were held with representative stakeholders.

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Agenda: Day one opened with part one of the Symposium, featuring invited presentations from one representative of each stakeholder group. The afternoon was comprised of the first Stakeholder Forum with 14 participants. The second day started with the second Stakeholder Forum with 12 participants; the afternoon was a guided discussion moderated by Andrea Fischer (INTERPOL consultant) and Catherine Bird (ICRC).

Symposium discussion questions included the following:

- ☐ Will the existence of a humanitarian, localized, stand-alone DNA database solve the problems with DNA sharing?
- ☐ What are strategies to improve FRS outreach?
- ☐ How can we facilitate creation of training protocols and certification for FRS collection?
- ☐ How can our international partners facilitate creation of context-driven guidelines?
- ☐ What are mechanisms to inform all partners on tools and resources?
- ☐ How do we see rapid DNA used in the context of missing migrants?

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Thus far our qualitative data analysis of the content of the Forums revealed 71 **challenges** and 37 **solutions** under the following eight topics:

- ☐ DNA testing infrastructure and policies
- ☐ Unidentified human remains (UHR) recovery and processes
- ☐ Family reference sample collection and processing
- ☐ DNA data sharing and comparisons

- ☐ Long turnaround times to matches
- ☐ Education on processes for DNA identifications
- ☐ Communication
- ☐ Funding

Our next step is to examine the stakeholder-identified challenges and suggested solutions to determine priorities of what to address and the viability of the suggestions. To that end, we present the following questions for your expert feedback.

[\[NEXT SCREEN\]](#)

PRIORITY CHALLENGES

For each of the following, answer specifically within the context of cross-border identifications. The challenges presented were derived from stakeholder discussions at the Forum in March 2020. You might disagree with statements made, in which case please give the topic a low priority.

[\[NEXT SCREEN\]](#)

[\[NEW SCREEN BETWEEN QUESTIONS\]](#)

1. [\[INFRASTRUCTURE\]](#) Rate the following challenges from most important to address (1) to least important (10) [\[RANDOM\]](#)
 - a. National government policies restrict DNA data sharing
 - b. State and/or local policies restrict DNA data sharing
 - c. Not enough missing persons reports are filed with law enforcement
 - d. Not enough medical examiners to serve the border deaths
 - e. Inadequate information provided on missing persons reports
 - f. Inadequate use of NamUs
 - g. Law enforcement agencies refuse to take missing persons reports
 - h. Inadequate workforce for DNA laboratories
 - i. Laboratories prioritize other casework ahead of missing persons
 - j. High turnover in government, NGO and agency workforces
2. Any comments on these priorities?
3. [\[UHR\]](#) Rate the following challenges from most important to address (1) to least important (6) [\[RANDOM\]](#)
 - a. Not enough UHR recoveries along the border
 - b. UHR are buried and/or cremated without DNA collection
 - c. UHR could be homicide victims so should be handled only by law enforcement
 - d. UHR are not sent to medical examiners
 - e. UHR are not given complete anthropological investigations
 - f. UHR specimen are challenged, so it is difficult to obtain high-quality DNA
4. Any comments on these priorities?
5. [\[FRS\]](#) Rate the following challenges from most important to address (1) to least important (9) [\[RANDOM\]](#)
 - a. Not enough FRS collection

- b. Families distrust law enforcement
 - c. Law enforcement control FRS collection
 - d. Families live in remote locations, making it hard to collect FRS
 - e. Difficulties in collecting FRS from families outside the United States
 - f. Law enforcement agencies refuse to take FRS from families outside of their jurisdiction
 - g. Law enforcement agencies do not send FRS to laboratories
 - h. FRS collection practices (like consent or training) are inadequate
 - i. Inadequate privacy protections for data collected
6. Any comments on these priorities?
7. [\[DNA DATA SHARING\]](#) Rate the following challenges from most important to address (1) to least important (9) [\[RANDOM\]](#)
- a. Fragmentation of FRS and UHR DNA data
 - b. Inadequate privacy protections for sharing DNA data
 - c. Private/commercial laboratories lack legal privacy protections for DNA data
 - d. DNA data from UHR are not shared with NGOs
 - e. Police data are shared inappropriately with NGOs
 - f. DNA data are not shared between government agencies across borders
 - g. DNA data are not shared between government agencies and NGOs
 - h. Direct matches to CODIS are not effective
 - i. Direct matches to CODIS are compromised by false identities provided by migrant detainees
8. Any comments on these priorities?
9. [\[EDUCATION/COMMUNICATION\]](#) Rate the following challenges from most important to address (1) to least important (10) [\[RANDOM\]](#)
- a. Long turn-around times for FRS collection
 - b. Long turn-around times for matches
 - c. General education needed on the processes for DNA identifications
 - d. Education needed for consulates on processes for DNA identifications
 - e. Education needed for Justices of the Peace on processes for DNA identifications
 - f. Education needed for Border Patrol agents on processes for DNA identifications
 - g. Inadequate communication with families while investigations are ongoing
 - h. Inadequate communication with families following a match
 - i. Inadequate communication between governments and NGOs
 - j. Inadequate communication with NGOs following a match
10. Any comments on these priorities?
11. [\[FUNDING\]](#) Rate the following challenges from most important to address (1) to least important (7) [\[RANDOM\]](#)
- a. Not enough funding for UHR recoveries
 - b. Not enough funding for UHR exhumations
 - c. Not enough funding for UHR storage
 - d. Not enough funding for laboratories
 - e. Not enough funding for UHR processing
 - f. Not enough funding for FRS processing
 - g. Not enough funding for FRS collection
12. Any comments on these priorities?

[NEXT SCREEN]

SOLUTION VIABILITY

For each of the following, answer specifically within the context of cross-border identifications. The solutions suggestions presented were derived from stakeholder discussions at the Forum in March 2020.

[NEW SCREEN BETWEEN QUESTIONS]

DNA testing infrastructure and policies

13. A stakeholder suggested that certain *countries* can serve as a good model for improving identifications. What country would you suggest is a good model? [FILL IN]
14. A stakeholder suggested that certain *states* and/or *counties* can serve as a good model for improving identifications. What region would you suggest is a good model? [FILL IN]
15. A stakeholder suggested that certain *NGOs* can serve as good models for improving identifications. What NGO would you suggest is a good model? [FILL IN]
16. A stakeholder suggested that certain *law enforcement agencies* can serve as good models for improving identifications. What law enforcement agency would you suggest is a good model? [FILL IN]
17. One challenge is that missing persons reports might be filed in the jurisdiction where the person is believed to be missing (like Texas) or in the jurisdiction where the family resides (like New York). In reality, UHR might be found anywhere in the United States. Should law enforcement units be encouraged to accept missing persons reports from families outside of their jurisdictions? [YES/NO]
 - a. If YES – Any comments on how to achieve this? [FILL IN]
 - b. If NO – Why not? [FILL IN]
18. In what ways could we improve use of NamUs? [FILL IN]
19. A stakeholder suggested developing a master manifest of cross-border missing persons as a centralized resource for all missing migrant investigations. NamUs is useful as a starting point, but is not exclusive to cross-border cases. Is this a good idea? [YES/NO]
 - a. If YES – How successful would this be? [5-pt LIKERT]
 - b. If YES – Any comments on how to achieve this? [FILL IN]
 - c. If NO – Why not? [FILL IN]
20. A stakeholder suggested requesting voluntary DNA samples from migrants as they prepare to cross the border. This could be coordinated through an NGO or through a law enforcement agency (like in Mexico). Is this a good idea? [YES/NO]
 - a. If YES – How successful would this be? [5-pt LIKERT]
 - b. If YES – Any comments on how to achieve this? [FILL IN]
 - c. If NO – Why not? [FILL IN]
21. A stakeholder suggested encouraging civilians to assist in investigating cross-border missing persons cases. Is this a good idea? [YES/NO]
 - a. If YES – How successful would this be? [5-pt LIKERT]
 - b. If YES – Any comments on how to achieve this? [FILL IN]

- c. If NO – Why not? [FILL IN]

[NEXT SCREEN]

Unidentified human remains (UHR) recovery and processes

22. A stakeholder suggested systemizing UHR search and recovery processes across jurisdictions. This would require concerted coordination among NGOs, CBP, and local law enforcement. Is this a good idea? [YES/NO]
 - a. If YES – How successful would this be? [5-pt LIKERT]
 - b. If YES – Any comments on how to achieve this? [FILL IN]
 - c. If NO – Why not? [FILL IN]
23. More graves are mapped every year of migrant UHR that were buried without DNA collected. Should exhumations be increased to identify these UHR? [YES/NO]
 - a. If YES – Any comments on how to achieve this? [FILL IN]
 - b. If NO – Why not? [FILL IN]
24. UHR are handled by medical examiners, coroners, and Justices of the Peace differently based on the jurisdiction. A stakeholder suggested setting standards for UHR handling and processing. Is this a good idea? [YES/NO]
 - a. If YES – How would successful standards be implemented? [5-pt LIKERT]
 - b. If YES – Any comments on how to develop and disseminate standards? [FILL IN]
 - c. If NO – Why not? [FILL IN]
25. A stakeholder suggested having dedicated UHR storage facilities. Is this a good idea? [YES/NO]
 - a. If YES – How successful would this be? [5-pt LIKERT]
 - b. If YES – Any comments on how to achieve this? [FILL IN]
 - c. If NO – Why not? [FILL IN]

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Family reference sample collection and processing

26. Outreach for FRS collection is fragmented and practices vary depending on the FRS-collecting organization. One challenge is when to request FRS from family members. When do you think is the best time? [ORDER]
 - a. At first contact, during a missing persons intake report
 - b. After re-contact with the family, once non-DNA leads are exhausted
 - c. After re-contact with the family, once a UHR is hypothesized as being a potential relative
27. A stakeholder suggested that law enforcement can use culturally appropriate staff to foster trust with families. Is this a good idea? [YES/NO]
 - a. If YES – How successful would this be? [5-pt LIKERT]
 - b. If YES – Any comments on how to achieve this? [FILL IN]
 - c. If NO – Why not? [FILL IN]
28. A stakeholder suggested that law enforcement can use trauma-experienced staff to work with families. Is this a good idea? [YES/NO]
 - a. If YES – How successful would this be? [5-pt LIKERT]

- b. [If YES – Any comments on how to achieve this? \[FILL IN\]](#)
 - c. [If NO – Why not? \[FILL IN\]](#)
- 29. A stakeholder suggested that rapid DNA technologies for local law enforcement or NGOs might expedite FRS processing. FRS could be run locally to create a DNA profile that can be shared with laboratories for comparison to UHR data. Is this a good idea? [YES/NO]
 - a. [If YES – How successful would this be? \[5-pt LIKERT\]](#)
 - b. [If YES – Any comments on how to achieve this? \[FILL IN\]](#)
 - c. [If NO – Why not? \[FILL IN\]](#)
- 30. A stakeholder suggested that non-law enforcement parties could be trained in DNA sampling, similar to sexual assault nurse examiners. These trained collectors could be entrusted with sampling by law enforcement without requiring direct law enforcement interaction, potentially to foster trust with families. Is this a good idea? [YES/NO]
 - a. [If YES – How successful would this be? \[5-pt LIKERT\]](#)
 - b. [If YES – Any comments on how to achieve this? \[FILL IN\]](#)
 - c. [If NO – Why not? \[FILL IN\]](#)
- 31. What is the best strategy for coordinating FRS outreach? [ORDER]
 - a. NGOs could contact families and coordinate FRS collection for private laboratory analysis; then, if there is a presumptive match, coordinate with law enforcement for a second sample for CODIS laboratory confirmation
 - b. NGOs could contact families and coordinate FRS collection with law enforcement
 - c. Law enforcement could work with families to coordinate FRS collection (no NGO involvement)
- 32. Outreach for FRS collection is particularly challenging when working across borders and jurisdictions. How best can FRS be collected across borders? [ORDER]
 - a. NGOs could contact non-U.S. families and coordinate FRS collection for private laboratory analysis; then, if there is a presumptive match, coordinate with relevant jurisdictional law enforcement or through a relevant Consulate office for a second sample for CODIS laboratory confirmation
 - b. NGOs could contact non-U.S. families and coordinate FRS collection for law enforcement analysis within the resident country/jurisdiction; that law enforcement agency can work with U.S. agencies for DNA data comparisons
 - c. NGOs could contact non-U.S. families and coordinate FRS collection by U.S. law enforcement or through a relevant Consulate office
 - d. Consulate offices in the relevant resident country/jurisdiction could work with families for FRS collection for law enforcement analysis within the resident country/jurisdiction; that law enforcement agency can work with U.S. agencies for DNA data comparisons (no NGO involvement)

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DNA data sharing and comparisons

- 33. DNA data comparisons between different data repositories is complicated by legal requirements for data security, especially in the context of criminal investigations. DNA data from a UHR in one database will never be matched to DNA data from FRS in

another database. As long as multiple databases exist, cross-comparisons are essential. How best can DNA data be shared?

- a. FRS data should be split into multiple databases [5-pt LIKERT]
 - b. UHR data should be split into multiple databases [5-pt LIKERT]
 - c. UHR data should only be in CODIS, and FRS data from NGOs should be uploaded into CODIS [5-pt LIKERT]
 - d. UHR data should only be in CODIS, and FRS data from NGOs should be periodically searched against CODIS [5-pt LIKERT]
 - e. UHR data should only be in a non-CODIS law enforcement database, and FRS data from NGOs should be uploaded into that database [5-pt LIKERT]
 - f. UHR data should only be in a non-CODIS law enforcement database, and FRS data from NGOs should be periodically searched against that database [5-pt LIKERT]
34. A stakeholder suggested that a separate database needs to be established at the international level to manage cross-border humanitarian comparisons. Is this a good idea? [YES/NO]
- a. If YES – How successful would this be? [5-pt LIKERT]
 - b. If YES – Any comments on how to achieve this? [FILL IN]
 - c. If NO – Why not? [FILL IN]
35. What other strategies might you suggest to improve DNA data sharing? [FILL IN]
36. Do you have any other comments to add? [FILL IN]

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We thank you for completing this questionnaire. As a reminder, please keep the data from the Stakeholder Forum confidential, and contact Sara Katsanis at skatsanis@luriechildrens.org for any information.