



The Center for Human Identification

A Resource for Inquests Involving Unidentified Human Remains

Mark Ingraham



THE UNIVERSITY *of* NORTH TEXAS
HEALTH SCIENCE CENTER *at* FORT WORTH

Mark Ingraham, MS

- Forensic Anthropologist at the Center for Human Identification. 2004-2015
- Associate Director, supervising the Forensic Anthropology Unit. 2015-present
- Sheriffs' Association of Texas, Cold Case Review Team. 2006-2020
- Texas Rangers' Unsolved Crimes Investigation Program, External Member





The Center for Human Identification (CHI)



A non-academic forensic services laboratory, located on the UNT Health Science Center campus in Ft. Worth

Established & funded by the TX Legislature as a criminal justice agency since 2001

Charged with providing forensic services to TX law enforcement agencies, justices of the peace, & medical examiners at **no direct cost**

Staff, facilities, & equipment are dedicated to full-time forensic casework

Located in secure, limited access facilities that are separate from our academic surroundings



TX Missing Persons DNA Database (TMPDD)

Authorized by the TX Legislature

Code of Criminal Procedure, Chapter 63:

Art. 63.056. COLLECTION OF SAMPLES FROM UNIDENTIFIED HUMAN REMAINS

Justices of the Peace, Medical Examiners, or other law enforcement entities shall collect & submit samples from unidentified remains to the Missing Persons DNA Database

Art. 63.057. DUTY OF LAW ENFORCEMENT AGENCY TO NOTIFY APPROPRIATE PERSONS REGARDING PROVISION OF VOLUNTARY SAMPLE

Duty of law enforcement to notify families, not later than 30 days after the missing persons report is filed, of the ability to contribute samples to the Missing Persons DNA Database



Center for Human Identification - Services

Missing Persons DNA Unit

Develop DNA profiles for Unidentified Human Remains & DNA samples representing missing persons

Populate & maintain the **TX Missing Persons DNA Database** & the **CHI Humanitarian DNA Database**

Forensic Anthropology Unit

Forensic analysis of skeletal remains

Forensic Casework DNA Unit

Sexual assault kit testing, forensic paternity, & specialized DNA analyses not provided by DPS Laboratories

Forensic Genetic Genealogy Unit

Generation of investigative leads for unidentified remains & forensic evidence cases that have not been solved using traditional DNA testing





Missing Persons DNA at CHI

All DNA activities are accredited under ISO/IEC 17025(AR3125) standards for forensic laboratories and the FBI's Quality Assurance Standards for Forensic DNA Testing Laboratories

The DNA laboratories are accredited, and all analysts are licensed, by the TX Forensic Science Commission

All cases & reports are reviewed prior to issuance

Center for Human Identification
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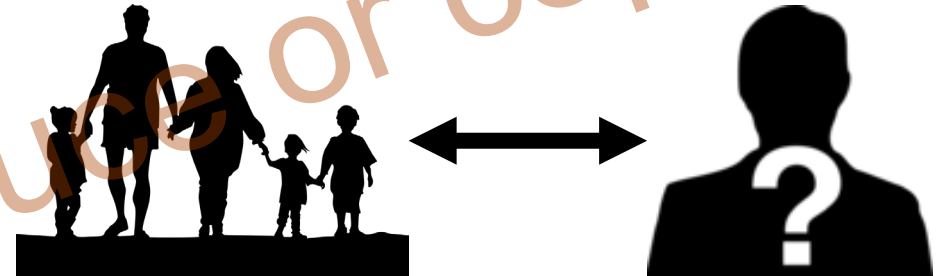
Accomplishing DNA Associations

Two Sides of a DNA association in the TMPDD

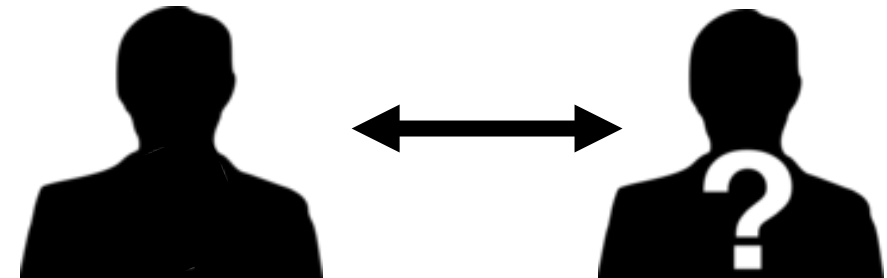
Unidentified Human Remains

Missing Person

Samples or Profiles from Family of the missing person



Samples or Profiles from the missing person





Unidentified Human Remains Submission

Who can submit?

- **Justices of the Peace**
- Medical Examiner offices (in-county OR out-of-county JP cases)
- County-funded forensic pathology offices
- Private forensic pathology groups*
- Forensic anthropology groups*
- Law enforcement agencies*
e.g. Texas Rangers, Sheriff's Offices, Police Departments

*authorized to assist with the inquest by the medicolegal authority (JP)

Unidentified Remains, DNA Samples

Fresh bodies

- Blood card
- Tissue sample (requires special packaging)
- Bone

Skeletal remains

- Intact long bone (e.g. femur, will be returned once DNA analysis is complete)
- Sample or section removed from bone
- Small bone (e.g. metatarsal)
- Teeth (molars preferred, no restorations & intact)

Intermediate (active decomposition)

- Deep tissue is possible but bone is likely best - Please call for advice



Family Reference Sample Submission

Collected & submitted by law enforcement or governmental agency

- Justices of the Peace
- Law Enforcement Agencies (local, state, federal)
- Medical Examiner's Offices
- Consular Offices (located in TX)

Collection preferences (if possible)

- 1st Order relatives preferred (parents/child/full-sibling)
- Collect more than one relative (recommended)
- Collect one maternally-related relative if possible

Submissions must have voluntary consent, witnessed by collecting agency

Unidentified Remains Searching at CHI

Unidentified remains at CHI search against TWO separate databases of references that represent missing persons

1. **CODIS** (Local, State, & National searching)

- Family reference & direct reference profiles for missing persons
- Convicted offender, arrestee, & detainee profiles
- Other unidentified remains profiles

2. **CHI's Humanitarian DNA Database**

- Family reference profiles produced externally by accredited, non-CODIS, laboratories (e.g. Guatemala's national laboratory (INACIF), Bode Labs)

What is CODIS?



CODIS = Combined DNA Index System

- Secure mechanism to electronically compare of DNA profiles within the database
- Software developed & administered by the FBI to house the National level of the DNA Database
- Software & secure hardware is provided to participating state & local CODIS laboratories
- Functions: DNA data storage, searching, & statistical analysis tools





Information for Missing & Unidentified in CODIS?

1. DNA Profile – Autosomal STRs, Y-STRs, & mitochondrial DNA
2. ORI number that identifies the uploading laboratory & the laboratory personnel associated with the DNA profile analysis
3. Specimen category and specimen ID number (unique number assigned by the uploading lab)
4. Limited metadata (e.g. date found, date missing) can be attached for missing persons/unidentified remains specimens

NO personally identifying information is stored in the CODIS Database!

CODIS Searching



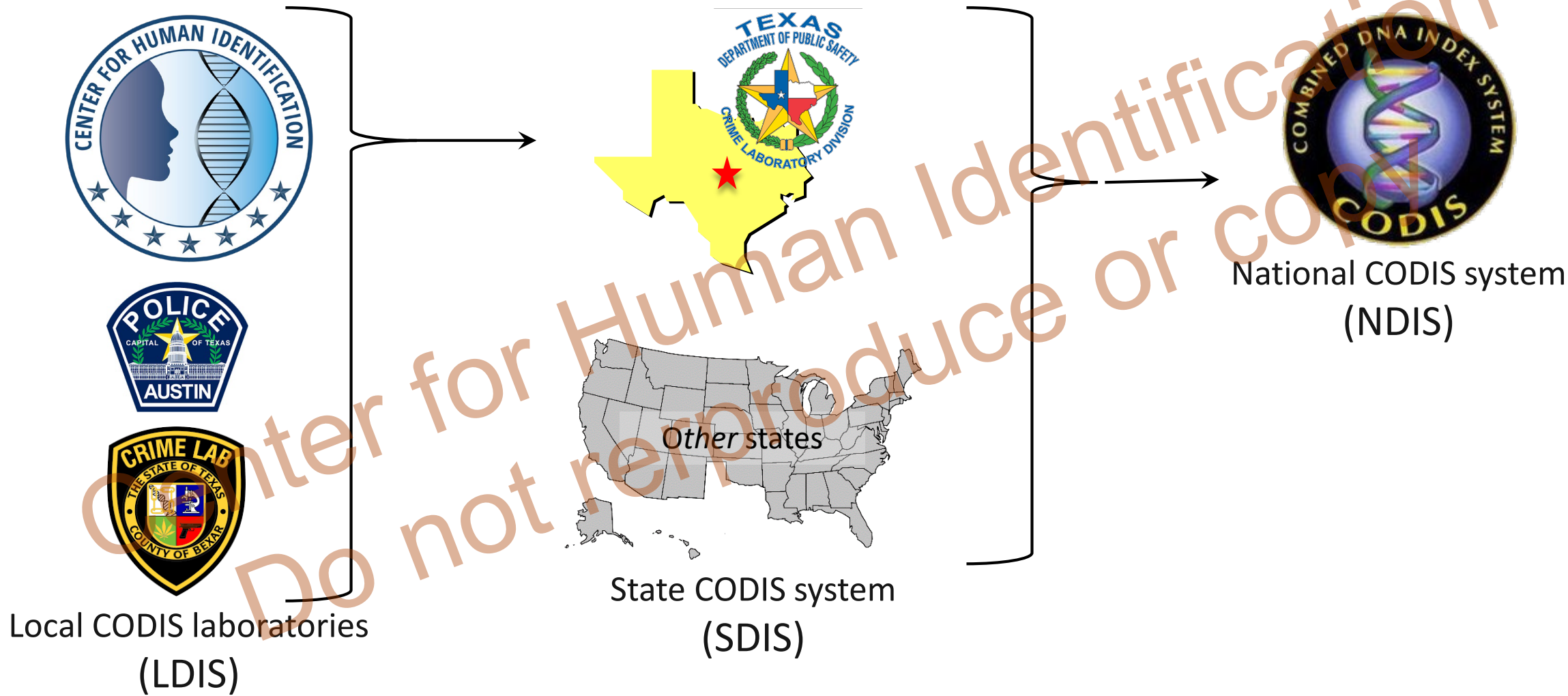
INDEX	Forensic/Criminal Indexes			Missing Persons Indexes		
	Crime Scene Evidence	Offender (Convicted Offender & Arrestee)	Detainee	Unidentified Human Remains	Relatives of Missing Persons & Pedigree Trees	Missing Person (direct)
Crime Scene	X	X	X	X		X
Offender	X			X		X
Detainee	X			X		X
Unidentified Human Remains	X	X	X	X	X	X
Relatives of Missing Persons & Pedigree Trees				X		
Missing Person	X	X	X	X		



CODIS Comparison of DNA Profiles

1. Eligible FRS profiles & UHR profiles are entered into CODIS at the local level
2. Profiles search against each other at the local CHI level
3. Unassociated profiles are then uploaded to the State level & searched against profiles from other local CODIS laboratories within the state
4. Unassociated profiles are then uploaded to the National level & searched against profiles from other state CODIS laboratories
5. Profiles remain in CODIS pending an association and continue to search as new profiles are added

CODIS Searching



Advantages of a National DNA Database



*The LONG reach
of CODIS*



Humanitarian DNA Database (HDD)

A method to compare family reference profiles (not samples) related to missing migrants, developed at accredited laboratories that are not CODIS eligible

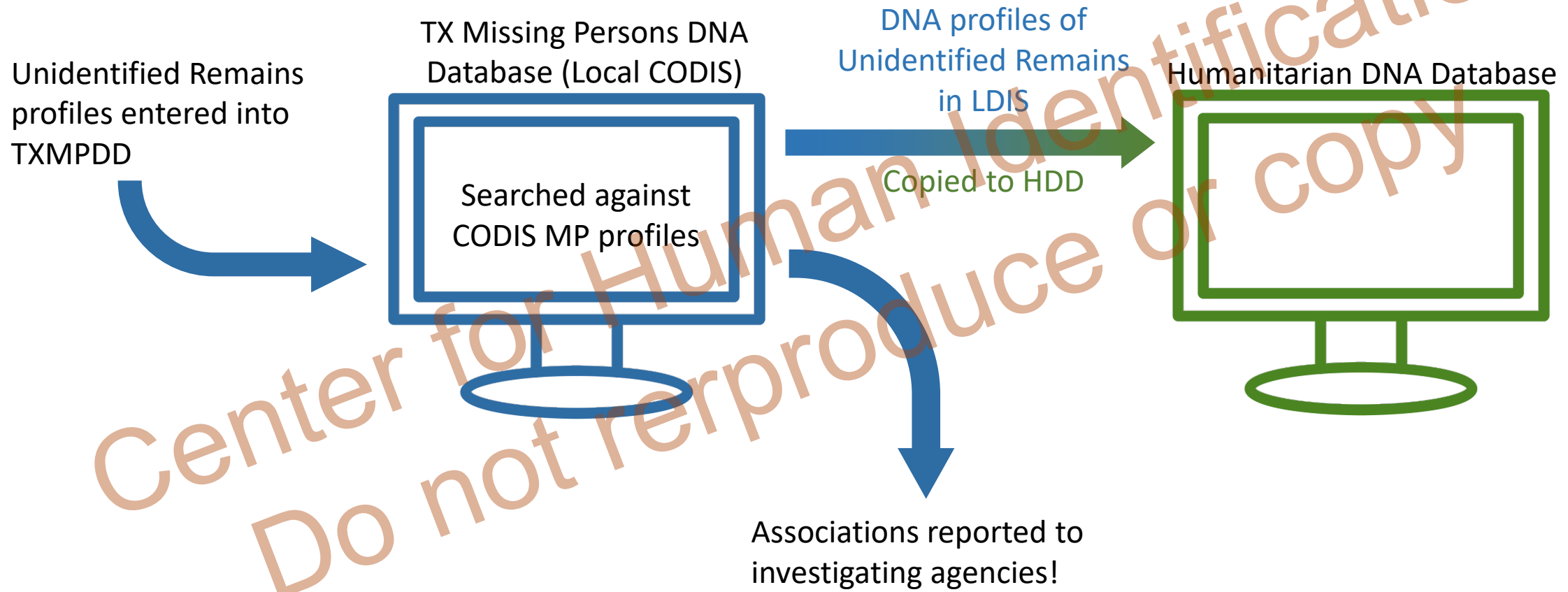
Memorandum of Understanding (MOU) established between FBI & CHI in 2019

Profiles exist in a stand alone, air-gapped server utilizing CODIS software. There is NO interconnectivity with any other CODIS lab or network

Contributors to date:

- EAAF profiles sent from Bode Laboratories (private)
- Guatemala & Mexico (national or state labs)
- Honduras – soon!

Unidentified Human Remains



HDD Comparison of DNA Profiles



Family Reference
PROFILES via NGOs or
foreign state labs

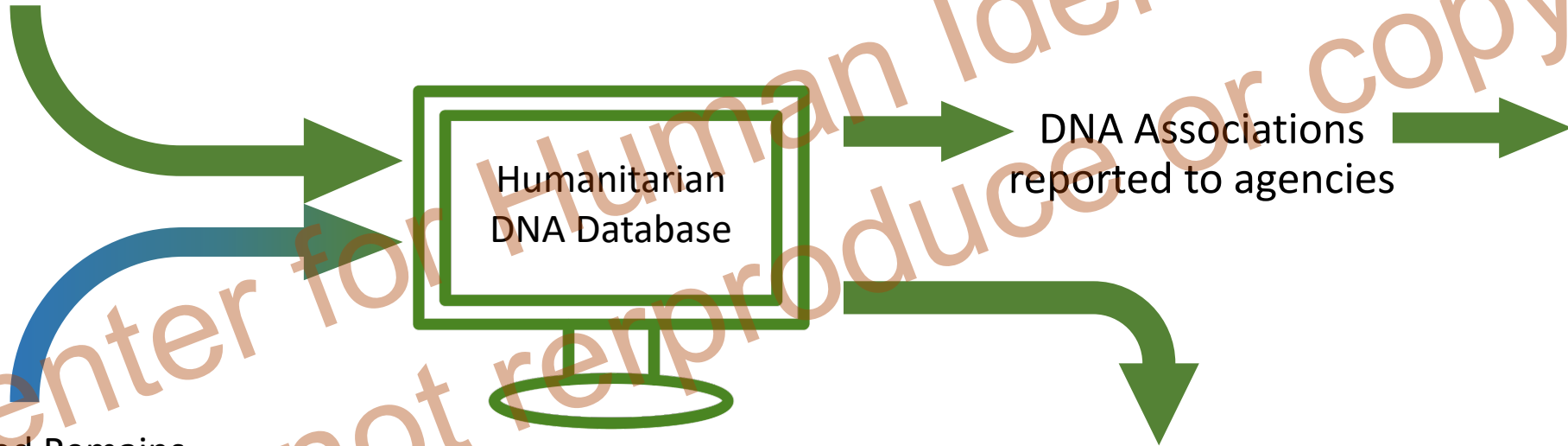
Unidentified Remains
profiles copied from
TXMPDD (Local CODIS)

Humanitarian
DNA Database

DNA Associations
reported to agencies

Once
identified,
profiles are
removed

If no association, searching
continues in hopes of a future
association





DNA Association Reports

Types of associations:

- Remains to Family or Direct reference samples
- Remains to Convicted Offender, Arrestee, or Detainee profiles
- Remains (partial) to previously submitted partial remains
- Manual comparison of remains with presumed ID profiles

Reports are issued to investigating & submitting agencies

- For all involved submissions (e.g. UHR & FRS agencies)
- You, as the medicolegal authority, should be listed on the submission form so that association reports are sent to you!

DNA association reports are a statistical evaluation, using that information (& other case-related information), it is your authority & responsibility to make the legal determination of identity



Associations to Family Reference Profiles

Associations between remains & profiles developed from family members are not an exact match

The statistics will be lower than direct comparison (high stringency) matches

The statistical value will depend on who the family members are, in relation to the missing person

Please feel free to call the Missing Persons DNA Unit @ CHI with questions regarding reports or statistics!



High Stringency Matches

Convicted Offender, Arrestee, & Detainee matches

- Essentially Direct Reference Samples
- Matches at the State or National level
- Strongest statistical support
- Often less helpful in finding Next-of-Kin for the decedent

Information included in the CHI report:

- Name, Aliases, DOB, FBI#, State ID#
- Alien ID# for Detainee matches - Border Patrol may have additional information that may assist in finding NOK!

What is Forensic Anthropology?

Analysis of human skeletal remains within a medicolegal context

May help answer questions relevant to medicolegal death investigations:

- Is an investigation or inquest needed?
- Description/documentation of remains
- Biological profile for the decedent
- Evaluate personal identification given sufficient antemortem records
- Identification & interpretation of perimortem trauma, assist with cause &/or manner of death



Forensic Anthropology at CHI

Secure facility with limited access

Laboratory & staff dedicated to full-time casework

Soon-to-be accredited under the ISO/IEC 17020 (ANAB 3120) standards for forensic inspection laboratories or units

All cases & reports are reviewed prior to issuance

All analysts:

- Board certified by the American Board of Forensic Anthropology
- Licensed by the TX Forensic Science Commission
- Have expert witness testimony experience

Inquest Needed?



Non-human remains



Inquest Needed?

Non-significant human remains
Historical/archaeological or educational





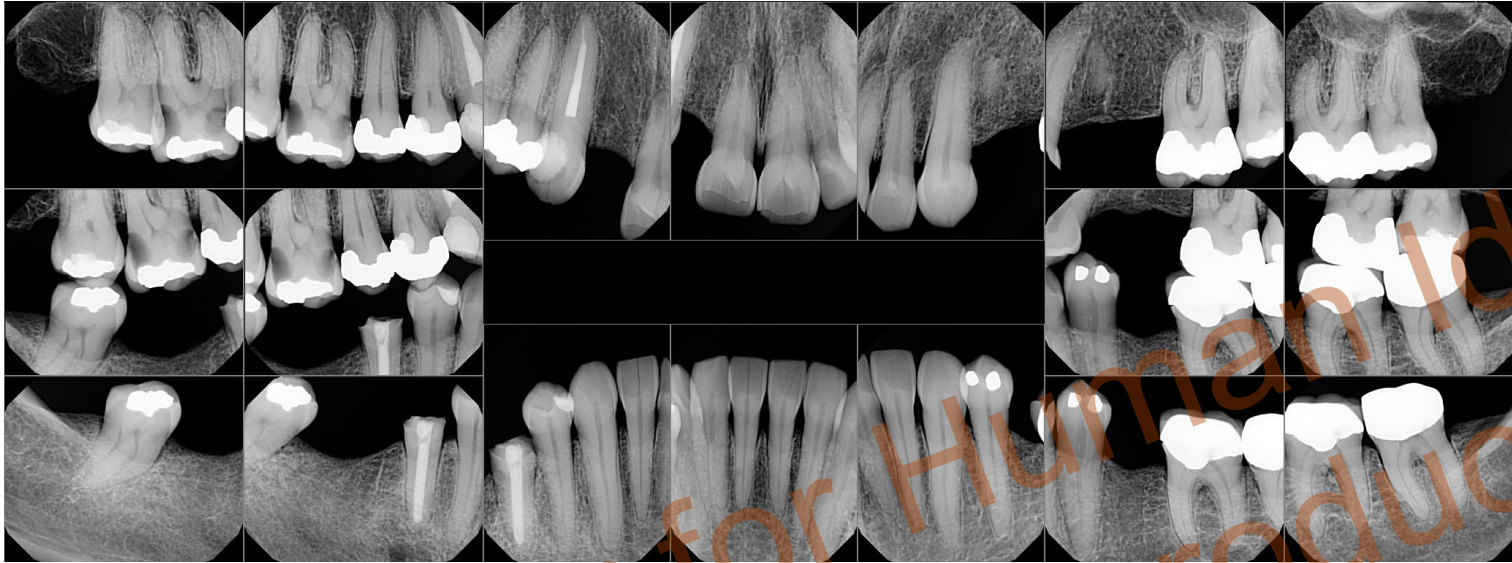
Description/Documentation

Documentation of remains recovered, especially important with partial remains

- What was recovered?
- What may be recovered in the future?

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Documentation - Dental



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Description/Documentation

Is more than one person represented?

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Laboratory Analysis – Biological Profile

- Information that **may** narrow the search for possible missing individuals
- Sex, Ancestry, Age, Stature
- Features which may describe the decedent or aid in establishing identity

?
=

MISSING	
	ADDITIONAL DETAIL
	NAME :
	HEIGHT :
	WEIGHT :
	AGE :
EYES :	
HAIR :	
UNIQUE SIGN :	
[PUT OTHER IMPORTANT INFORMATION HERE]	
LAST SEEN :	
TEXT 1	
TEXT 2	
TEXT 3	
IF YOU HAVE INFORMATION PLEASE CONTACT (Phone Number)	



Descriptive Features

Anomalies/congenital
variants

Antemortem injuries

Medical intervention

Pathological conditions

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Laboratory Analysis, Personal Identification



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Radiographic Comparison, Incidental Imaging



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Laboratory Analysis – Perimortem Trauma

- Reconstruction of fragmented remains
- Identification & documentation of skeletal trauma

OR

Documentation of no trauma

- Trauma classification: blunt force, projectile, sharp, thermal, mixed, dismemberment
- Analysis: number, direction, sequence, etc.

Skeletal Trauma & Cause of Death

As part of a death investigation, skeletal analysis should always include an evaluation of possible trauma (*"there is no evidence of skeletal trauma"* is different than no statement in the report regarding trauma)

No skeletal trauma does not mean that trauma did not occur; trauma affecting soft tissue, scavenged bone, or missing elements cannot be ruled out

Given uncertainty regarding soft tissue evidence of trauma, a specific *Cause of Death* statement in a skeletal analysis report is usually inappropriate, even if skeletal trauma is documented

The final determination of Cause and Manner rests with the medicolegal authority



Unidentified Skeletal Cases, DNA Sampling

For cases submitted for both Forensic Anthropology & the Missing Persons DNA Database, the Forensic Anthropology Unit will:

- Select samples or sample locations believed to provide the best possible DNA results
- Document and remove samples for testing
- Forward samples to the Missing Persons DNA Unit for analysis and inclusion in the DNA database



Secure Evidentiary Storage of Unidentified Remains

Option to store unidentified remains @ CHI pending an identification

Not used for education or research

Allows for the rapid return of remains once identified

Avoids problems associated with cemetery burials of the unidentified (location of graves, exhumation efforts, & associated costs)

Requires an authorization from a Justice of the Peace (see CHI's JP Authorization Form) or ME



CENTER FOR HUMAN IDENTIFICATION
Forensic Anthropology Unit

AUTHORIZATION FOR FORENSIC ANTHROPOLOGICAL ANALYSIS

Pursuant to Articles 49.10 (k, n) and 49.25 (sec. 13) of the Texas Code of Criminal Procedure, the Center for Human Identification's Forensic Anthropology Unit is hereby authorized to perform a medicolegal analysis of the remains described below. The Center is further authorized to release information and reports pertaining to this case to the law enforcement agencies involved in this investigation without further authorization by me.

Signed this _____ day of _____,	
by _____	
Justice of the Peace, _____	County, Precinct # _____
Telephone _____	
Report preference: ☐ E-mail address _____	
☐ Mailing address _____	
☐ None, send report to submitting/investigative agency only	
Signature _____	
Investigating law enforcement agency _____	
Investigating agency case number _____	
Contact name _____	Telephone _____
Date of recovery _____	Location _____
Decedent ☐ Unidentified with no presumed identity	
☐ Presumed name and demographic information _____	
Circumstances surrounding death _____	
Notes or special instructions _____	
Disposition of medicolegal* remains following analysis:	
☐ Archive at the Center for Human Identification's secure facility pending an identification (Provided at no cost)	
☐ Release to submitting/investigative agency following analysis (to include DNA analysis, if requested)	

Center for Human Identification
3400 Camp Bowie Blvd., Fort Worth, TX 76107-9964
800.763.3147

hsc THE UNIVERSITY of NORTH TEXAS
HEALTH SCIENCE CENTER at FORT WORTH



Some Final Comments Regarding Skeletal Cases

Investigators may treat skeletal remains (especially partial remains) differently than fresh bodies. There is a tendency to think of bones as evidence

Remember that skeletal remains represent what remains of a body & require an inquest

If skeletal remains are to be sent out-of-county for an examination, an authorization from the Justice of the Peace should accompany them (regardless of the submitting agency)



Delayed Death Certificates

If a death certificate is not filed within one year from the date of death, a delayed death certificate may ONLY be filed by the county probate court (*TX Health & Safety Code 193.007*)

If remains are unidentified, with no leads, the best practice is to file a death certificate as such (*John/Jane Doe*)

When an identification is made, the DC may be amended with the name. This avoids the requirements associated with a delayed death certificate



Other Legislation

NCIC and MP Information Clearinghouse (DPS)

CCP Art. 49.04(d) & 49.05(sec.6a)

Death shall be reported to the **Missing Persons Information Clearinghouse** (DPS) & **NCIC** within 10 working days.

- Must rely on LE to enter case information into NCIC
- Clearinghouse draws its information from NCIC

Other Legislation, NamUs

CCP Art. 49.04(e) & 49.05 sec 6(a). Effective September 1, 2021

Justice of the Peace or the justice's designee shall enter information regarding the remains into the National Missing and Unidentified Persons System (NamUs)

- NOTE – this is an informational requirement, not the TX mandated DNA submission
- As the medicolegal authority, the JP can have a NamUs Professional User account:
<https://www.namus.gov/Registration>
 - JPs may authorize LE to be a *Professional User* and enter remains cases on their behalf
- Time-frame: 60 days after an investigation begins **OR** 10th working day after one or more identifying features are determined – whichever is earlier
- Following analysis, details may be added (e.g. bioprofile, dental info, DNA analysis complete, etc.)



Case Submissions to CHI

Options:

- Samples for DNA only
- Skeletal remains for forensic anthropological analysis
- Unidentified remains for both

Submission forms available on the CHI website

Please call the CHI Evidence Unit if you have any questions regarding submissions, shipping of samples/remains, or need assistance in completing the submission form

TEXAS MISSING PERSONS PROGRAM

University of North Texas Center for Human Identification, 3400 Camp Bowie, Fort Worth, TX 76107
1-800-763-3147, www.untchi.org

Unidentified Human Remains Submission Form

Instructions: Complete each section as applicable (shaded areas will be completed by UNTCHI). Note: Sections 1, 2, 4, 5 and 6 are required for submission. Omission of required information will cause a delay in processing.	UNTCHI Case No.		
1. SERVICES REQUESTED			
☐ Forensic Anthropological Analysis Note: If submitting remains for Forensic Anthropological analysis, please submit all of the skeletal elements that were recovered. Include with this submission form any investigative reports, scene descriptions, scene photographs, and maps. If you have questions regarding the submission of remains for anthropological analysis, call the Laboratory of Forensic Anthropology directly at (800) 279-1339.			
☐ DNA Analysis (nuclear, mtDNA and/or Y-STRs) and CODIS entry (if applicable) Note: Type of DNA Analysis will be case dependent and determined by a qualified analyst			
2. SUBMITTING AGENCY			
Agency: _____	Agency Case No: _____		
Address: _____	NCIC No: _____		
_____	NamUs UP No: _____		
Contact Name: _____	Phone No: _____		
Contact Email: _____	Fax No: _____		
Agency's Shipping Company and Account No: _____ Required for return shipment of remains			
3. INVESTIGATING AGENCY Complete this section if the investigating agency is different from above			
Agency: _____	Agency Case No: _____		
Address: _____	_____		
_____	_____		
Contact Name: _____	Phone No: _____		
Contact Email: _____	Fax No: _____		
4. EVIDENCE SUBMITTED Attach additional paperwork if needed			
UNTCHI SAMPLE NO.	ITEM NO.	QUANTITY	DESCRIPTION
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
			☐ Additional paperwork attached
5. CHAIN OF CUSTODY			
Released by: _____ Signature Printed Name Date & Time Released			
Shipped by: _____ Shipping Company Tracking Number			
Received by: _____ (For UNTCHI Use Only) Signature Printed Name Date & Time Received			

Services Requested

You may submit samples (for DNA only) or skeletal cases directly

- List yourself as the submitting agency
- You may add an additional Investigating Agency if you would like for them to receive reports

Your local (or state) law enforcement agency may act as the submitting agency

- You should be added as the investigating agency so that you receive reports
- Being listed on the submission form allows the analysts to send reports, discuss their findings, & release remains on your order

JP Agency case number???

- If you generate your own internal case number, please use that on the form
- If you do not generate a case number, please use the investigating law enforcement number

TEXAS MISSING PERSONS PROGRAM

University of North Texas Center for Human Identification, 3400 Camp Bowie, Fort Worth, TX 76107
1-800-763-3147, www.untchi.org

Unidentified Human Remains Submission Form

6. Unidentified Human Remains Related Information

- Date found is required
- State and County are required

7. Associated Case Information

- If there is a presumed ID, provide that info here
- Submit the reference samples (swabs) and the FRS submission form separate from the remains and unidentified remains form

8. Additional Information

- Any relevant information. This section is not required

9. Shipping and Contact Information

- Please call the CHI Evidence Unit for questions or assistance in completing the submission form or shipping the samples or remains

6. UNIDENTIFIED HUMAN REMAINS RELATED INFORMATION

Date Remains Found: _____

Location Remains Found (include City/County and State): _____

Are dental records available for the remains? ☐ Yes ☐ No

Was the whole body or complete skeleton found? ☐ Yes ☐ No

If Known: Age: _____ Sex: ☐ Female ☐ Male Race: _____ Height: _____

UNT Center for Human Identification REQUIRES that a descriptive forensic report(s) be included with the submission of remains (unless forensic anthropological analysis has been requested). Acceptable reports include: Medical Examiner, Coroner, Forensic Anthropologist, or Forensic Pathologist reports. The submission of investigative reports is encouraged. Please indicate the reports included with this submission:

☐ Medical Examiner or Forensic Pathologist

☐ Investigator (Sheriff, Police Department, etc.)

☐ Forensic Anthropologist

☐ Forensic Odontologist

Note: The information contained in these reports is often critical in the CODIS identification process. These reports are treated as confidential documents related to the case.

7. ASSOCIATED CASE INFORMATION Complete this section if there is information regarding the potential identity of the unidentified remains

Name of Missing Person: _____ Last _____ First _____ Middle _____

Investigating Agency: _____ Agency Case No: _____
(for the missing person's case)

NamUs MP No: _____ NCIC No: _____

Have reference samples for the missing person been previously submitted to CODIS? ☐ Yes ☐ No

If yes, were reference samples submitted to UNTCHI? ☐ Yes, UNTCHI Case No: _____
☐ No

Are reference samples being submitted at the same time as this unidentified remains sample? ☐ Yes ☐ No

NOTE: Family reference samples should be packaged separately and submitted with the appropriate submission form.

8. ADDITIONAL INFORMATION Include any important details related to this case which may assist UNTCHI

9. SHIPPING AND CONTACT INFORMATION

Submit this form with the sample. Evidence items must be shipped using a carrier which can track the shipment (FedEx, UPS, DHL, etc). Overnight shipping is recommended and biodegradable samples must be packaged appropriately. For shipping questions or assistance with this form, contact Evidence Control at (800) 763-3147 or missingpersons@unthsc.edu.

Shipping Address: UNT Center for Human Identification
Attn: Evidence, CBH 6th Floor
3400 Camp Bowie Blvd.
Fort Worth, TX 76107



Packaging and Shipping

Shipping guidelines are available on the CHI website under the *Submission Forms* tab

- *Guide for Shipping Samples to the Center for Human Identification*
- *CHI Shipping Guide for Skeletal Remains for Forensic Anthropological Analysis*

The evidence unit can assist with questions regarding sample packaging and shipping. For skeletal submissions for forensic anthropological analysis, please call the Forensic Anthropology Unit prior to shipping

Contacts



Services and Contact Information

Missing Persons DNA Unit

For technical questions regarding the testing of family reference or unidentified remains samples, status of testing, or interpretation of reports

Krystle Rodriguez
Missing Persons DNA Unit, Technical Leader
Krystle.Rodriguez@unthsc.edu
O: 817.735.2618

Forensic Anthropology Unit

For questions regarding the submission of skeletal remains for analysis or issued reports

Mark Ingraham
Associate Director, Forensic Anthropology Unit
Mark.Ingraham@unthsc.edu
O: 817-735-5660 | M: 940-206-4465
Forensic Anthropology Laboratory: 817-735-2190 | ForensicAnthropology@unthsc.edu

Evidence Unit

For general CHI questions and submission information to include: submission forms, packaging, shipping, and/or delivery

Brittany Knapp
Evidence Specialist Supervisor
Brittany.Knapp@unthsc.edu
Evidence Unit: 800-735-3147 | MissingPersons@unthsc.edu

Forensic Genetic Genealogy

For questions regarding FGG testing for unidentified remains cases that have not been solved via traditional (CODIS) DNA testing and databases

Robert Moore
Director of Investigative Support, Forensic Genetic Genealogy (FGG)
Robert.Moore@unthsc.edu
O: 817-735-7943 | M: 817-703-3351

Center for Human Identification Website

www.unthsc.edu/chi or



3400 Camp Bowie Blvd. | Fort Worth, TX 76107 | 817.735.0606 | 800.763.3147 | unthsc.edu/chi

Contact information provided via TJCTC

Website QR Code





Thank You!



Mark Ingraham

Associate Director, Forensic Anthropology Unit

O: 817-735-5660 / M: 940-206-4465

Mark.Ingraham@unthsc.edu



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