


Texas Justice Court Training Center


Forensic Services for the Missing and Unidentified

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International Coordinator



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Disclaimer



Missing and Unidentified Human Remains (MUHR)
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Disclaimer



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We acknowledge the collaboration with the FBI CODIS Unit for providing the Humanitarian DNA Database to the CHI.

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Disproportionate Violence & Missing Persons Burden



- American Indian & Alaska Native (AI/AN) women experience higher rates of violent victimization than most other groups
- In some tribal regions, homicide rates exceed national averages by >10x
- AI/AN women are more likely to experience sexual violence and assault compared to other populations
- Violence is often underreported, limiting visibility and response
- Jurisdictional complexity (tribal, state, federal) delays or prevents effective investigation

Bachman et al., 2008

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Missing and Murdered Indigenous People Crisis



- <https://www.bia.gov/service/mmu/missing-and-murdered-indigenous-people-crisis>
- 2016 NIJ Study: AI/AN communities experience higher rates of assault, abduction, and murder
- Violence is tied to systemic and historical factors
- Barriers include:
 - lack of reporting
 - limited resources
 - difficulty identifying victims (data gaps)

VIOLENCE AGAINST AMERICAN INDIAN AND ALASKA NATIVE WOMEN AND MEN

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U.S. Department of the Interior / Bureau of Indian Affairs (BIA)

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Migrant deaths along the U.S. borders

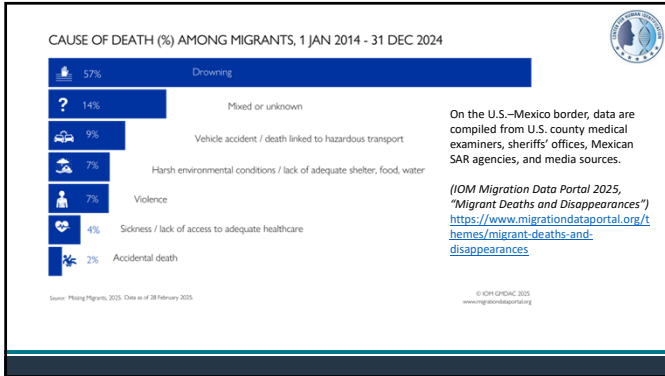


- The challenges:
 - Delayed recoveries and potential identification
 - Limited resources in rural/tribal jurisdictions
 - Complex international coordination
- Impact on:
 - Families searching for loved ones
 - Agencies handling recoveries

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Missing & Unidentified Persons: National Context



- 498,038 missing person records entered in 2025 alone
- 88,093 active missing persons at end of year
- Juveniles represent ~24% of active cases
- Many cases involve vulnerable or endangered individuals
- Data gaps limit understanding of specific impact

The NCIC Missing and Unidentified Reports
 NCIC compiles annual Missing and Unidentified Person
 Statistics reports:

- 2025 statistics
- 2024 statistics
- 2023 statistics
- 2022 statistics
- 2021 statistics
- 2020 statistics
- 2019 statistics
- 2018 statistics
- 2017 statistics
- 2016 statistics
- 2015 statistics

These reports are also available at fbi.gov/library.

<https://le.fbi.gov/informational-tools/ncic>

2025 National Crime Information Center (NCIC) Missing Person and Unidentified Person Statistics

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2025 National Crime Information Center (NCIC) Missing Person and Unidentified Person Statistics



2025 MISSING PERSON ENTRY BY AGE/SEX/RACE

AGE	FEMALE					MALE					UNK				
	ASIAN	BLACK	INDIAN	UNK	WHITE	ASIAN	BLACK	INDIAN	UNK	WHITE	ASIAN	BLACK	INDIAN	UNK	WHITE
ALL	5,382	95,682	5,303	7,750	131,905	5,794	91,553	4,369	8,094	142,076	4	8	15	37	66

AGE	ENTRY SUMMARY				ENTRY WITH NO DOB	TOTAL ENTRY
	JUV	ADULT	ALL	UNK		
0-17	323,767	173,857	497,624	414	414	498,038
0-20	341,684	155,940	497,624	414	414	498,038

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Scale of missing/unidentified cases in the U.S.



According to the Justice Department's National Institute of Justice's, National Missing and Unidentified Persons System (NamUs) Program database, over 600,000 individuals go missing in the United States every year. In addition, it is estimated that 4,400 unidentified bodies are recovered each year, with approximately 40,000 remaining unidentified at any given time.

<https://bia.ojp.gov/doc/fs-muhr.pdf>

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MUHR program critical contributions



- AI/AN and Missing Migrant cases face:
 - Limited forensic resources
 - Geographic isolation
 - Delayed or fragmented investigations
- Underreporting + data limitations hinder response
- Effective response requires:
 - Dedicated forensic infrastructure
 - Cross-jurisdiction collaboration
 - Culturally informed engagement

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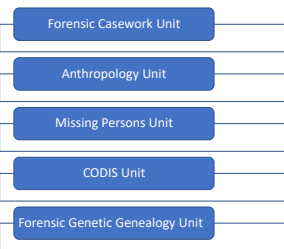
The Center for Human Identification (CHI)



- Non-academic forensic services laboratory, located on the UNT Health Science Center campus in Ft. Worth
- Secure facilities, separate from our academic surroundings
- Established & funded by the TX Legislature as a criminal justice agency to provide forensic services to TEXAS law enforcement agencies, justices of the peace, & medical examiners at no direct cost
- Staff & equipment dedicated to full-time forensic casework
- All DNA activities are accredited under ISO/IEC 17025/ANAB 3125 standards, and the FBI Quality Assurance Standards for Forensic DNA Testing Laboratories

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The Center for Human Identification



- The Texas Code of Criminal Procedures designated CHI as a criminal justice agency and the state's database for missing persons
 - Texas law requires that unidentified human remains be submitted to CHI
- UNT signed an agreement with the FBI to participate in CODIS
 - There are currently more than 6,000 profiles of unidentified human remains
- CHI has expertise in multiple DNA analysis technologies, including STR, Y-STR, mitochondrial DNA, massively parallel sequencing (MPS), and forensic genetic genealogy

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Accomplishing DNA Identifications



Unidentified Human Remains (UHR)



Family Reference Samples (FRS)



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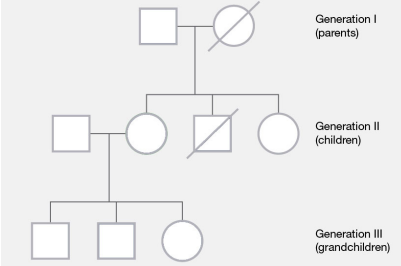


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Pedigree Trees



- Biological relationships inferred through shared DNA
- Pedigree structures guide kinship likelihood calculations
- Used in CODIS and forensic genealogy to support identifications



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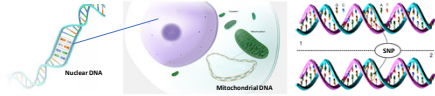
Services through the MUHR Program



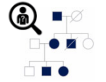
DNA testing for Unidentified Human Remains (UHR) samples and Family Reference Samples (FRS) collected from family members of the missing person



mtDNA, STR, Y-STR, mini STR, and Single Nucleotide Polymorphism (SNP) testing as appropriate



Developed DNA profiles are entered and searched in the CODIS and CHI's Humanitarian Databases



Free of charge

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National Initiative to Support Underserved & Indigenous Communities



- Federally funded initiative from The Bureau of Justice Assistance (a component of the Office of Justice Programs) to assist with **Missing and Unidentified Human Remains (MUHR)** nationwide
- **Program Goals:** Expand access to DNA services in rural, tribal, and border regions; support Missing Migrant and American Indian/Alaskan Natives cases; and strengthen coordination among agencies
- **Eligibility:** Underserved jurisdictions with a suitable sample and need for field coordination



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CHI Works With Several Partners



- Tribal Law Enforcement
- Municipal (City) Law Enforcement
- Justices of the Peace
- State Agencies (e.g., Medical Examiners, DNA Labs)
- Consulates (Local and Courtesy Collection Agencies)
- Federal Partners
- International Partners

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CODIS = Combined DNA Index System



- Software developed and administered by the FBI to house the National DNA Database
- DNA data storage, searching, and statistical analysis tools
- Free to agencies worldwide



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CODIS Hierarchy



- **NDIS** – The National DNA Index System (operated by the Federal Bureau of Investigation)
- **SDIS** – A State DNA Index System (operated by a state agency such as attorney general, or state forensic laboratory)
- **LDIS** – A Local DNA Index System (operated by a city or county forensic laboratory)

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DNA Comparisons in CODIS



INDEX	Forensic STR	Convicted Offender	Unidentified Human Remains	Relatives of Missing Person	Missing Person
Forensic STR	X	X	X		X
Convicted Offender	X		X		X
Unidentified Human Remains	X	X	X	X	X
Relatives of Missing Person			X		
Missing Person	X	X	X		

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CODIS Searches



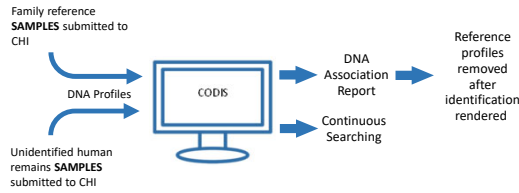
Family Reference Samples

- They are searched ONLY in the index of unidentified human remains
- Are removed upon receiving notification from the agency that the remains were positively identified



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CODIS Comparison of DNA Profiles



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Humanitarian DNA Database (HDD)



Establishment

- A memorandum of understanding was established between the FBI and CHI in 2019
- Pilot program to try to identify human remains of migrants using family reference DNA profiles developed in approved laboratories in other countries

Software Configuration

- Standalone, network-isolated server containing CODIS software. No interconnection with any other CODIS laboratory or network
- Profiles of unidentified human remains developed in CHI are entered into the server



Human trafficking – Multinational challenge for forensic science
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Bruce Radouk^{1,2*}, Magdalena M. Bui^{1,2}, Mabely A. Jossereau¹, Diane L. Peters¹

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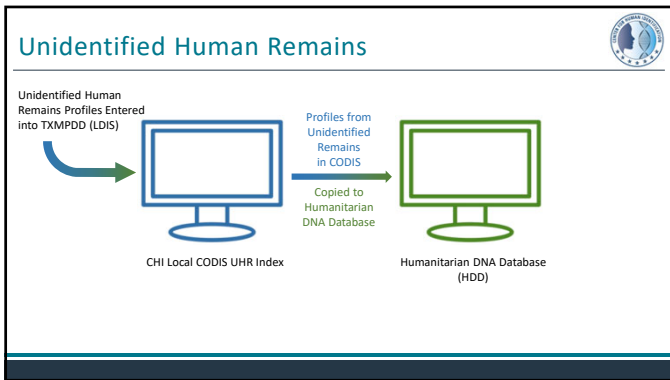
Home > International Journal of Legal Medicine > Article

A standalone humanitarian DNA identification database system to increase identification of human remains of foreign nationals

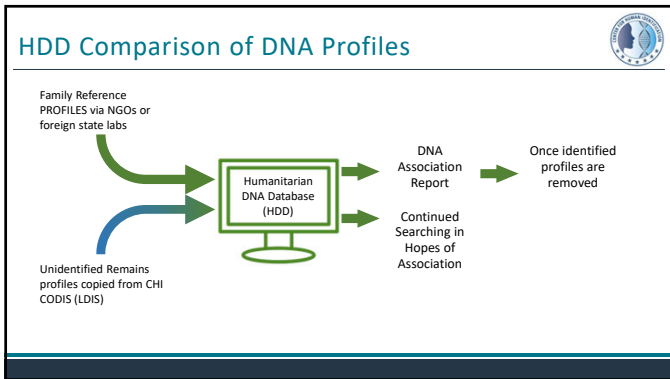
Short Communication | Published: 06 August 2020
Volume 134, pages 2039–2044, (2020) [Cite this article](#)

Bruce Budowle ✉, Magdalena M. Bus, Melody A. Jossierand & Dixie L. Peters

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Official Adoption of International Data-Sharing Accords



Sustaining and expanding regional collaboration

- Built capacity for sustainable programs in Central America
- Currently sharing family reference profiles and working toward sustainable international sharing
- Advancing efforts to increase participation in the sharing of unidentified human remains data
- Results in Central America have generated interest from South American partners



Central American Forensic DNA Congress 2024 in Panama

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International Cooperation Model for FRS



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Expansion of International FRS Data Sharing



- Ongoing collaboration with partner countries in Central America and international NGOs to strengthen the exchange of DNA profiles, both with CHI and among countries throughout the region.
- Examples of participating organizations:

- Equipo Argentino de Antropología Forense (EAAF)



- Servicio Nacional de Medicina Legal y Ciencias Forenses – SNMLCF Ecuador



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Expanding UHR Participation



Increasing the number of UHR profiles in the Humanitarian DNA Database through strategic partnerships.

- Centro Regional de Identificación Humana (CRIH) – Coahuila, México
- Initiative initially focused on the U.S.–Mexico border states.
 - A new MOU with California is expected to be signed soon, establishing procedures for profile submission, continuous searching, and the reporting of genetic associations.
 - New York City Office of Chief Medical Examiner
 - New Jersey State Police Office of Forensic Sciences
 - Once the process has been fully established, expansion to additional states is anticipated.



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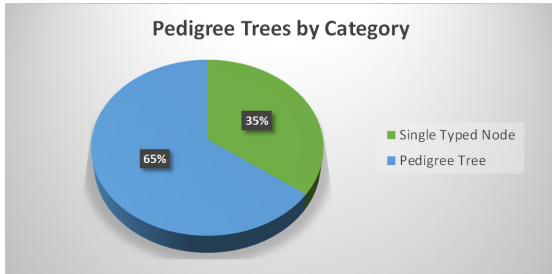
Associations at CHI



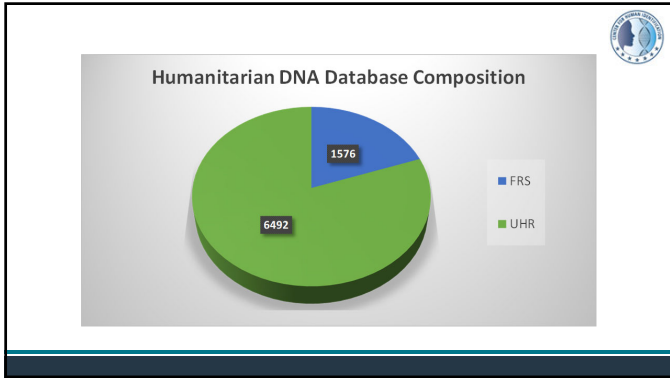
- Since 2003, CHI has reported over 4190 DNA associations to law enforcement agencies
- In 2025, over 85 DNA associations were reported using traditional CODIS
- Since its implementation in 2023, the HDD has facilitated 135 DNA associations in international missing persons cases, supporting cross-border identification efforts.

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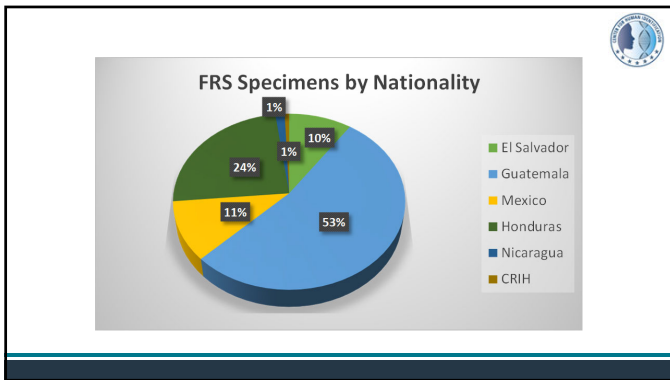
Pedigree Trees by Category



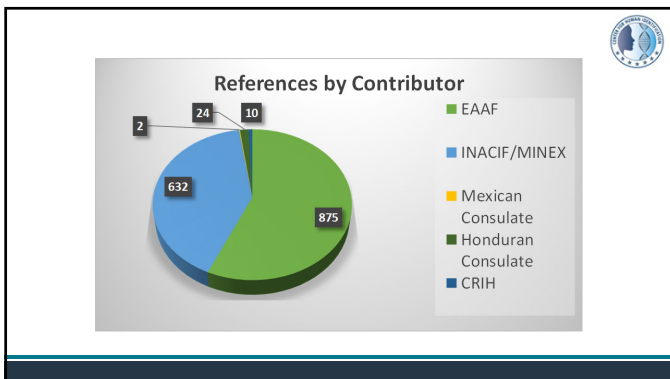
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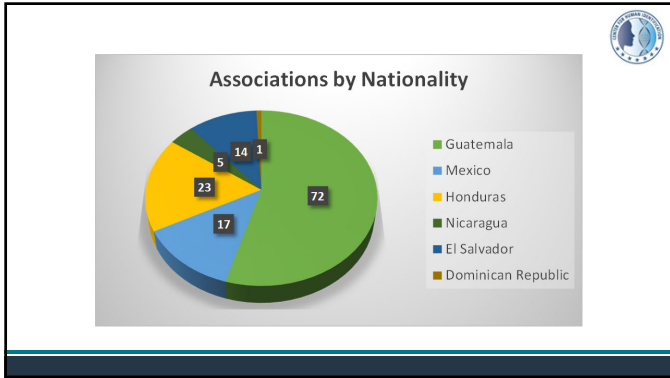
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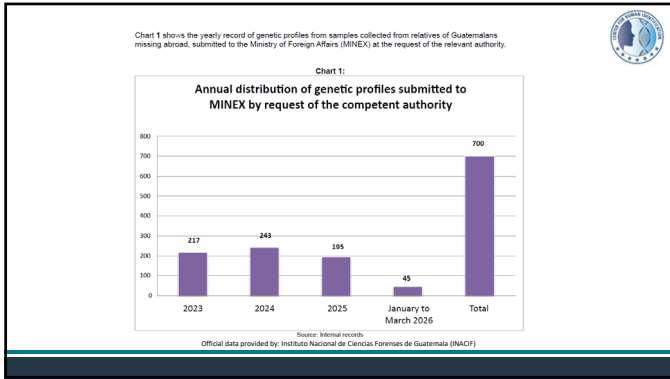
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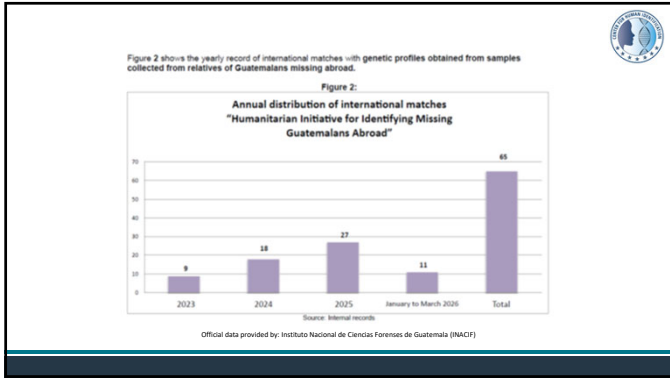
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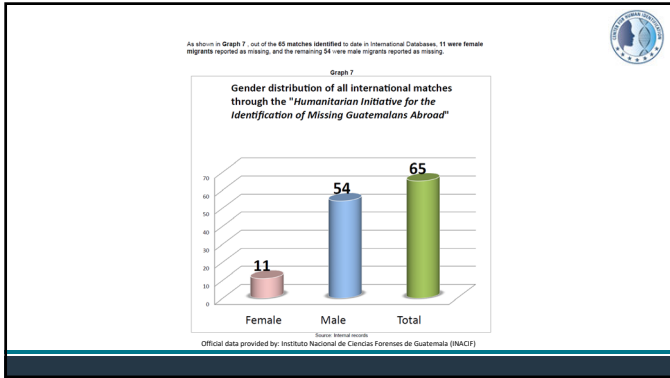
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Missing Persons DNA Report - Considerations

- *The mtDNA and Y-STR data provide genetic support for the proposed relationship but also may be the result of a chance association, and therefore, may be coincidental rather than indicative of a true kinship relationship.*
- *Investigators are strongly encouraged to evaluate all associated case information in addition to the provided genetic results before declaring the identity of the remains.*
- *The submission of additional first-order relatives may increase the above statistical calculation. If additional statistical weight is needed, please contact the analyst listed below to determine which first-order relatives would provide the most informative comparisons.*

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Missing Persons Work

- The medicolegal authority is the only entity authorized to make a legal identification and issue a death certificate.
- DNA testing is a small portion of the entire process, and our involvement ends upon notification of database associations
- Our ultimate goal is to identify the unidentified which we hope provides closure to families with missing loved ones

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Expanding Forensic Services for MP and UHR Cases



- Analyze DNA from unresolved Missing Migrant and American Indian/Alaskan Native cases in all U.S. jurisdictions at no cost
- Perform advanced and supplemental testing (mtDNA, Y-STR, SNP, FGG when appropriate)
- Enter profiles into CODIS and CHI's Humanitarian DNA Database (HDD)
- Leverage our national and international stakeholder network to aid identifications

✦ Reach out to CHI to discuss eligibility under MUHR and collaborate on case resolution

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Acknowledgements



- Dr. Michael Coble - Executive Director
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Our Values: Courageous Integrity | Be Curious | We Care | Better Together | Show Your Fire

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