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SPRING 2019

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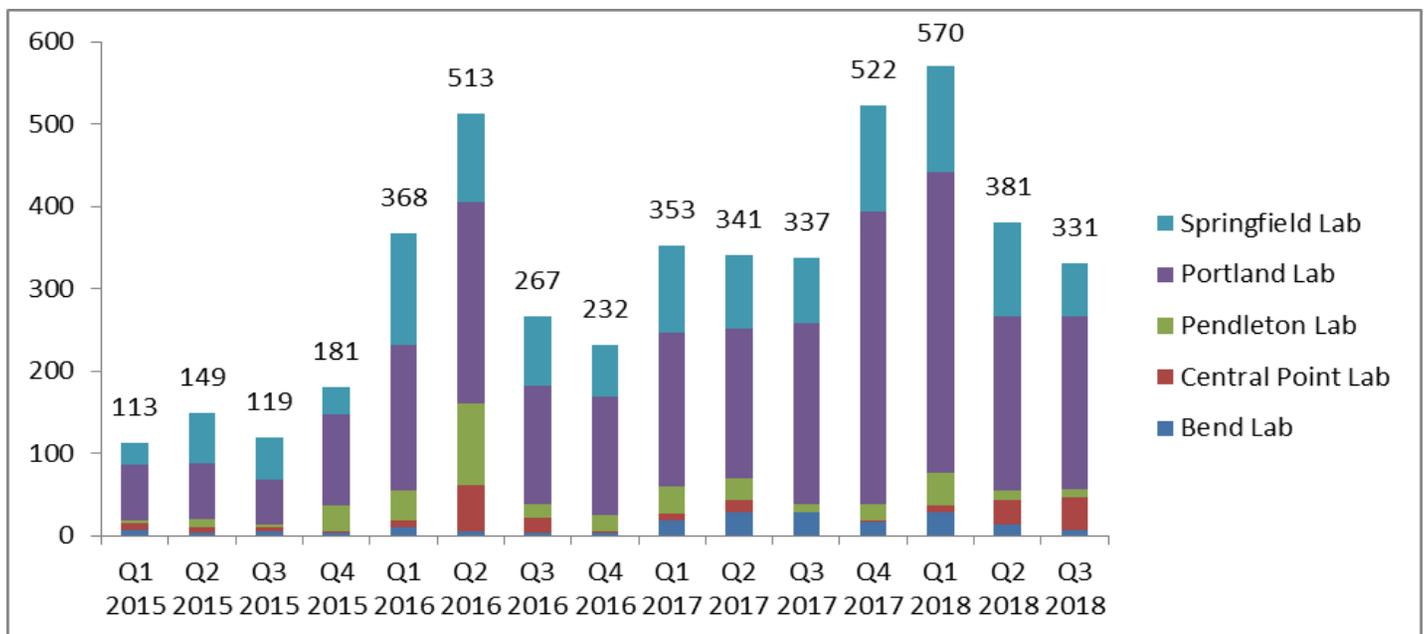
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OREGON'S SAFE KIT BACKLOG

In the Spring of 2016, the Oregon Senate enacted SB 1571. Better known as Melissa's Law, SB1571 is named in honor of Oregon teenager Melissa Bittler who was sexually assaulted and killed in 2001 at the age of 14. Her case, in conjunction with nationwide attention focused on the issue of rape kits never submitted to crime laboratories, helped reveal that Oregon law enforcement agencies, like those in many states, had a sizable backlog of untested rape kits. This backlog included many kits that for one reason or another had never been submitted to a crime lab for testing.

With the passage of SB 1571, the Oregon State Police Forensic Services Division (OSP FSD) anticipated an influx of Sexual Assault Forensic Evidence (SAFE) kits. Under Melissa's Law, law enforcement agencies were required to send in all old SAFE kits in their possession that met certain criteria, and submit current SAFE kits to the lab within a narrow window of time. As shown in the graph below, OSP received an initial rush of kits submitted shortly after the bill was signed and again at the end of 2017 when it was fully implemented. Each new SAFE kit submission was logged in to the evidence database, opened and triaged by staff members in the Biology Processing section, and then forwarded for DNA analysis and interpretation.

We're proud to announce that as of November, 2018, the state's backlog of previously-unsubmitted SAFE kits has been cleared! Lab staff members are currently working sexual assault cases as they are submitted, and turn-around time has been greatly reduced. The next page shows our pending backlog and turnaround time over the past several years as we tackled this challenge.



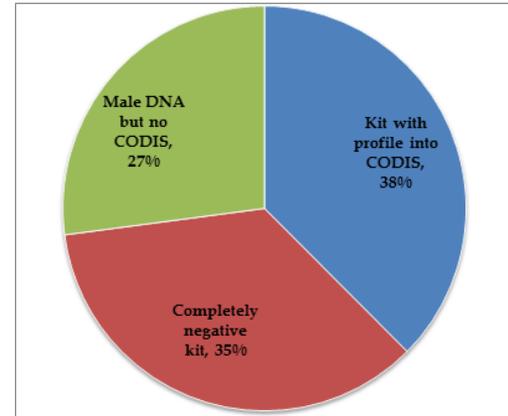
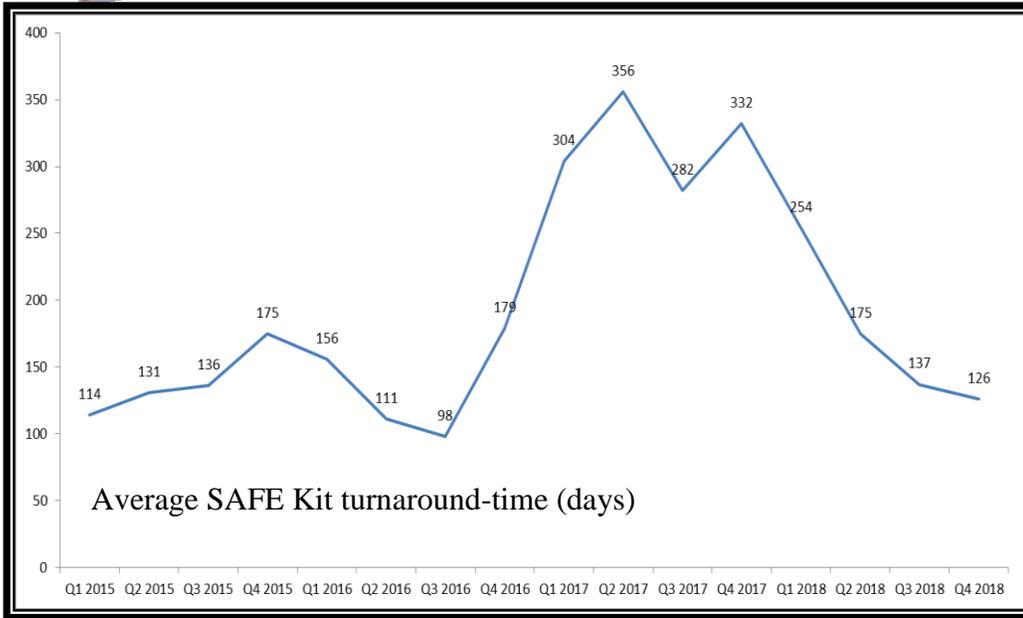
SAFE kit processing requests received by OSP Forensic Labs: 2015 – September 2018



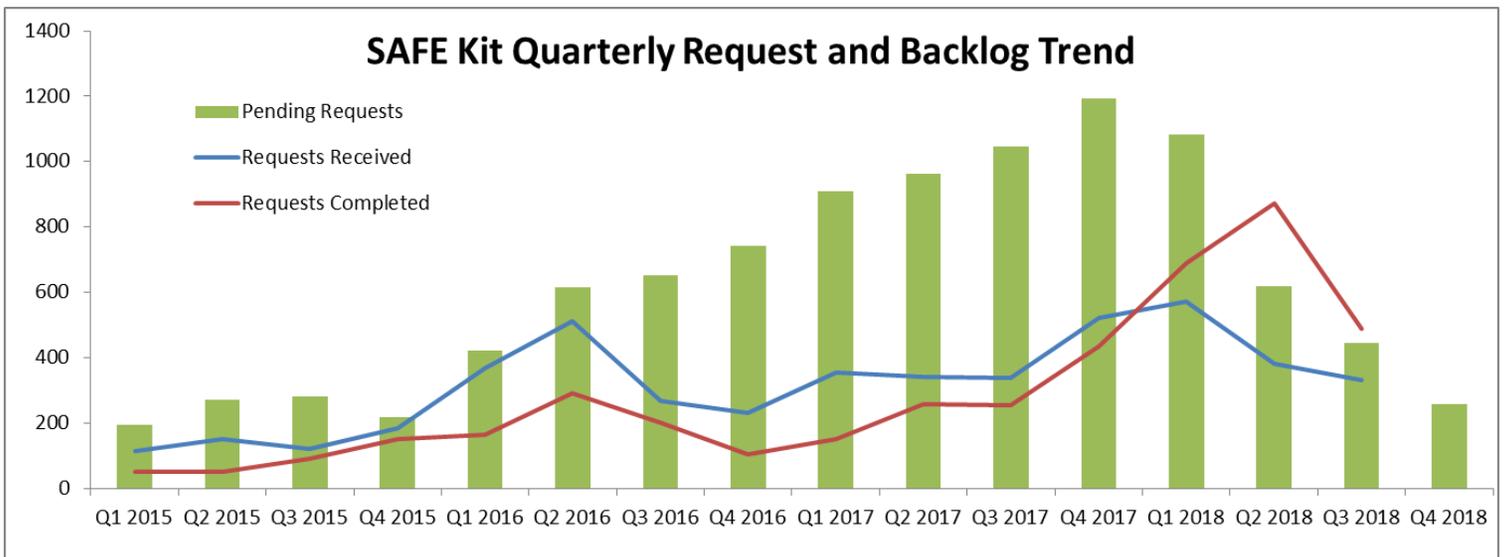
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STATEWIDE UPDATE: OREGON'S SAFE KIT BACKLOG



Overall results from SAFE kits processed for male DNA using Y-screening techniques, May 2016 through 2018. For more about Y-Screening and CODIS, see the [Spring 2018 Newsletter](#).



We'd like to share these kind words from OSP Superintendent Travis Hampton:

*The Forensic Services Division (FSD) has retired Oregon's Sexual Assault Forensic Evidence (SAFE) kit backlog, joining just two other states in the country to reach this lofty goal. In 2016, legislators required all police agency SAFE kits migrate from evidence lockers to our labs- resulting in nearly 5,000 kits requiring screening or sampling by scores of our highly trained colleagues. Through some incredible efficiencies developed by our team members and **A LOT** of hard work, our colleagues in the labs have worked their way through this mountain of evidence to appropriately process the backlog-- in addition to the steady submission rate of additional SAFE kits.*

This amazing teamwork accomplishment will resonate across the public safety spectrum and serves as an incredible milestone for sexual assault survivors and their advocates. I'm very proud of this team and am glad I'm around to witness this incredible accomplishment. Thank you to all our Forensic team members; this is a very special day in the history of the OSP.



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Oregon State Police Resumes Using University of North Texas for Unidentified Remains and Missing Person Family Reference Samples

In February 2017, the University of North Texas (UNT) lost NIJ funding to perform DNA analysis on biological samples on a national level. The Oregon State Police saw this as a call to action, and initiated new procedures for both Unidentified Persons cases (“UP”) and Missing Persons cases (“MP”) in our DNA laboratory. Although OSP FSD does not provide mitochondrial DNA analysis, our commitment was to deliver the best service possible for our users making these requests. Unidentified human remains, as well as family reference samples from the relatives of missing persons, began to come to our labs for processing. Fortunately, UNT regained its critical funding in August 2017, and re-initiated analysis of DNA samples for all agencies requesting assistance in the United States. At the time, OSP decided to continue to process UP and MP samples in-house and integrate the new procedures into our workflow.

However, in late 2018, a review of our UP and MP program revealed a gap in optimizing these cases. We recognized two critical factors affecting the work we did: we couldn’t provide mitochondrial DNA services, and without these mito-DNA services, we couldn’t resolve some possible CODIS matches with confidence. (Mitochondrial DNA can be used to provide strong positive links between samples.) OSP believes that any available DNA analyses, including mitochondrial techniques, should be utilized to maximize chances of resolving these investigations.

In order to optimize efficiency in processing these unique cases, Oregon State Police Forensic Services Division now recommends that ***all DNA samples from UP and MP cases be directed to the University of North Texas Center for Human Identification for mitochondrial DNA analysis***. While all other DNA-request capabilities through OSP will remain, this decision makes the most of UNT’s capabilities and also makes more efficient use of Oregon’s laboratory resources.

Unless other arrangements are made, *all unidentified remains samples* will be sent to UNT by the Medical Examiner’s Forensic Anthropologist, Dr. Nici Vance (nvance@osp.oregon.gov). Links to the paperwork required by UNT are found below. Please submit these completed documents along with the samples to OSP; they will be forwarded to UNT with the samples.

- UNT Missing Person Family Reference Sample Submission Form:
<http://www.untfsu.com/Documents/DNAForms/FamilyReferenceSamples.pdf>
- UNT Missing Person Direct Reference Sample Submission Form (MP toothbrushes, razors, etc.)
<http://www.untfsu.com/Documents/DNAForms/DirectReference.pdf>

If you have additional questions, please do not hesitate to contact OSP DNA Supervisor Stephenie Winter Sermeno at 971-673-8261 or Forensic Anthropologist Nici Vance at 971-673-8202.



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State Medical Examiner’s Office Receives NIJ Grant to Identify Recovered Remains

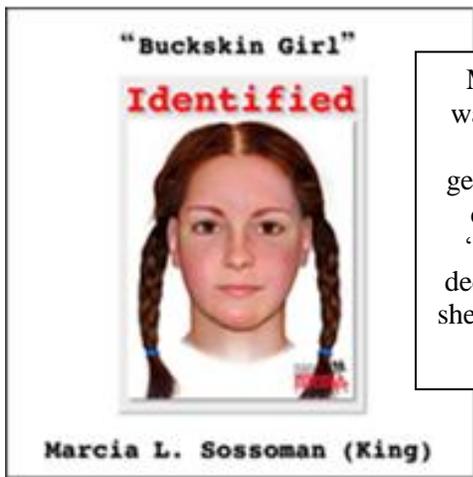
In 2019 the Oregon State Police Medical Examiner Division (MED) will begin exploring new ways to identify over 150 sets of remains being held at its Clackamas Facility. Through the recent award of a National Institute of Justice backlog reduction grant, the MED can now afford to use cutting-edge DNA technology to resolve cases. The grant application, titled “Phenotyping, Law Enforcement and Stable Isotope Analysis: Enriching Identification Dynamics through the Medical Examiner” (P.L.E.A.S.E. I.D. M.E.), was submitted under the NIJ Forensic DNA Laboratory Efficiency Improvement and Capacity Enhancement Program for the purpose of reducing the backlog of missing persons and unidentified remains samples. After the award was announced, the MED began reviewing cases for possible submission to private laboratories for innovative DNA testing and preparing to embark onto a very busy three years.

What new DNA technology will be used to advance these cases?

Primarily, we’ll be sending biological samples to private labs for three types of analyses: genetic genealogy, DNA phenotyping, and stable isotope analysis. The [Fall 2018 FSD newsletter](#) featured genetic genealogy testing and DNA phenotyping as new novel methods to advance cold cases.

To review, **Genetic genealogy (GG)** is a tool that can be used to identify human remains by linking DNA to family members of a missing person. Genealogists accomplish this by comparing the amount of DNA that is shared between two people, combined with traditional genealogical research using historical records to infer relationships between individuals. GG can be used to generate leads and further cold case investigations. Our Medical Examiner’s Office plans to use GG to attempt to resolve numerous cases in Oregon.

Case example with Genetic Genealogy: “Buckskin Girl” was discovered strangled April 28, 1981, in Troy, Ohio. Although she had been found less than 48 hours after death, her fingerprints and DNA did not “hit” in any database for over 37 years. Genetic Genealogy was performed by the DNA Doe Project, a nonprofit organization recently created to apply genetic genealogy tools to the identification of unknown persons. The victim’s DNA was obtained from a blood sample that had been in storage since 1981; it was processed using advanced DNA techniques, and uploaded to a public genealogy database where associations to a family tree were obtained.



Marcia King (right) was identified after 37 years with genetic genealogy testing. Her case was known as “Buckskin Girl” for decades in Ohio, where she was found strangled.



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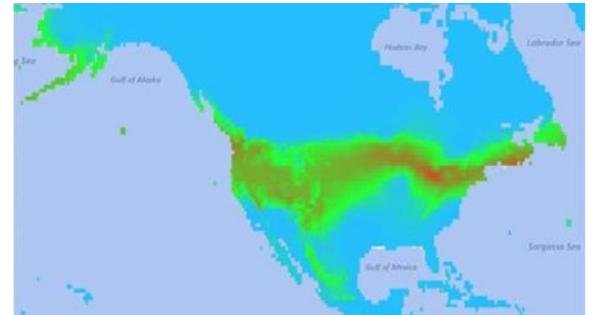
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If genetic genealogy testing produces no meaningful results, the MED may consider **DNA phenotyping** for information about the unidentified person. Phenotyping analysis predicts the physical appearance (eye and hair color, complexion, and other details) and the biogeographic ancestry of an unknown person from the person's DNA. Although individuals may alter their appearance, phenotyping analysis can provide valuable investigative information. A report from a private laboratory will include a composite sketch that includes detail on eye color, skin color, hair color, face morphology, and biogeographic ancestry. For an example, refer to the Fall 2018 FSD newsletter.

Isotopes are different forms of an element naturally found in the environment and in human tissue. Common elements that possess isotopes include carbon, oxygen, hydrogen, and nitrogen. Individuals take in varying levels of isotopes throughout their lifetime, often based on where they reside geographically. **Stable Isotope Analysis** can determine where a person grew up, or where they lived in the last 20-25 years of their life. Forensic investigators can also use this information to narrow down a list of missing persons as a potential match for unidentified remains.

The map to the right is an example of stable isotope analysis on the hair, bone, and teeth of an unidentified teenager discovered in **Josephine County, Oregon, in August 1971**. The **red portions** of the map indicate the probable geographic location of this girl's upbringing and last years of life. **This unidentified young woman is most likely NOT FROM OREGON** based on the intense red regions along the northeastern portion of the United States. The composite image of this young girl was created by CT scanning technology utilized by the National Center for Missing and Exploited Children (NCMEC). This case is still open and active in Josephine County.



How are UP cases being chosen for this project? Can I request that my case be worked? A number of parameters must be met in order for a UP case to be considered for additional DNA analyses under the NIJ grant. The Medical Examiner Division is reviewing each case to determine 1) if a DNA extract from the case still exists, 2) whether the volume of extract will allow for additional testing, and 3) when no extract remains, if there are additional human remains that can provide new results. Based on the answers to these questions, cases and samples are being flagged for analysis beginning in June 2019.

Cases from the following counties are currently being evaluated for the P.L.E.A.S.E.I.D.M.E. project: Baker, Clackamas, Clatsop, Coos, Curry, Grant, Hood River, Klamath, Clatsop, Columbia, Douglas, Jackson, Josephine, Lane, Lincoln, Linn, Marion, Morrow, Multnomah, Polk, Sherman, Tillamook, Willamette, Yamhill, and Washington. If you have a current unidentified person case and your county is **not** listed above, please contact Dr. Nici Vance for a consultation regarding your case. Our goal is to further the investigations of as many UP cases as possible in the next 3 years. Our objective is to serve families of missing and unidentified people by solving these mysteries, and we look forward to collaborating with all law enforcement agencies to achieve that goal.

Dr. Nici Vance, NVance@osp.oregon.gov
Forensic Anthropologist, OSP Medical Examiner Division
Senior Forensic Scientist, OSP Forensic Services Division



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The Path Forward includes OSAC: Organization of Scientific Area Committees

There are many factors driving improvement in the field of forensic science, including influences from litigation, and input from respected scientists, such as the 2009 National Academy of Sciences Report entitled *Strengthening Forensic Science in the United States: A Path Forward*. The forensic profession is also influenced by changing technologies, ongoing scientific research, and evolving lab accreditation standards.

To help guide and manage the paths of forensic improvement, the OSAC was formed in 2013 and resides under the umbrella of the National Institute for Science and Technology. From its Charter: “The mission of the Organization of Scientific Area Committees (OSAC) for Forensic Science is to strengthen the nation’s use of forensic science by facilitating the development of scientifically sound forensic science standards, and by promoting the adoption of those standards by the forensic science community.”

As shown in the diagram on the next page, the OSAC is divided into multiple sub-committees based on five major classifications of forensic disciplines. Each of the major classifications is represented by a Scientific Area Committee (SAC) that provides oversight and guidance to their respective sub-committees. Each sub-committee has members who are currently working as forensic examiners, as well as statisticians, attorneys, and academics—over 500 members in all. Over half of the OSAC members are forensic practitioners, from dozens of disciplines, including firearms, latent prints, biology and DNA analysis, crime scene investigation, chemistry, toxicology, trace evidence, and other areas of expertise.

The goals of each sub-committee include standardizing forensic terminology and analytical procedures from lab to lab and state to state through the creation of a national registry of forensic standards, as well as the facilitation of continuing research into scientific questions in their field. As OSAC-drafted documents are finalized, they are submitted to a standards development organization (SDO), such as the American Society for Testing and Materials (ASTM) or the American Academy of Forensic Sciences Standards Board (ASB). The intent of an SDO is to develop standards through a consensus process that takes into account the voices of producers, users, and consumers of the documents. These consensus standards could someday be a factor in determining whether forensic work is accredited or even whether it should be deemed admissible in a court of law.

In addition to sub-committees on specific types of scientific analysis, there are three “resource committees” that provide guidance and feedback on documents related to quality issues, areas of potential bias and human error, and legal ramifications of forensic standards.



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Organization of Scientific Area Committees

The Oregon State Police Forensic Services Division currently has three employees serving on OSAC sub-committees. Each serves a three-year term with an option for a second term, and membership requires attendance at national meetings. For OSP FSD employees, the majority of the costs are reimbursed by NIST; duty-time is contributed by the Oregon State Police as part of their commitment to this professional organization.

OSP's sub-committee members are: Adam Fleischer (Springfield Lab, Supervisor): Seized Drugs
Celeste Grover (Portland Lab, Trace Technical Leader): Materials (Trace)
Marla Kaplan (Portland Lab, DNA Technical Leader): Biological Methods

As the work of the OSAC bears fruit, our forensic community looks forward to increased quality and consistency in the years ahead. For more details about this ongoing endeavor, visit: <https://www.nist.gov/topics/organization-scientific-area-committees-forensic-science>

