

ADVANCED FORENSIC DNA LABORATORY AT CFSL, CHANDIGARH

Advanced DNA Laboratory has four independent units fully equipped with modern DNA Profiling tools and techniques:

- 1. Sexual assault & homicide unit
- 2. Paternity unit
- 3. Human identification unit
- 4. Mitochondrial DNA unit



FORENSIC DNA TECHNOLOGY

- * Autosomal Short Tandem Repeats
- * Y-Chromosomal Short Tandem Repeats
- * X-Chromosomal Short Tandem Repeats
- * Mitochondrial DNA sequencing
- * Next-Generation Sequencing



ARRESTEE DNA DATABASE

- * Arrestee sampling
- * Produce Investigative leads
- * Solve crimes
- * Exonerate the innocent
- * Prevent future crimes

USE OF FORENSIC DNA TESTING IN SEXUAL ASSAULT AND POCSO CASES

- * Solves & Reduces Crime
- * Exonerate the innocent
- * Saves Money
- * Increase Conviction Rate

VARIOUS AWARENESS PROGRAMS TO REDUCE THE CRIME RATE FOR

- * Medical practitioners
- * Law enforcement agencies
- * Judges & prosecutors
- * Forensic Professionals



गृह मंत्रालय
MINISTRY OF
HOME AFFAIRS

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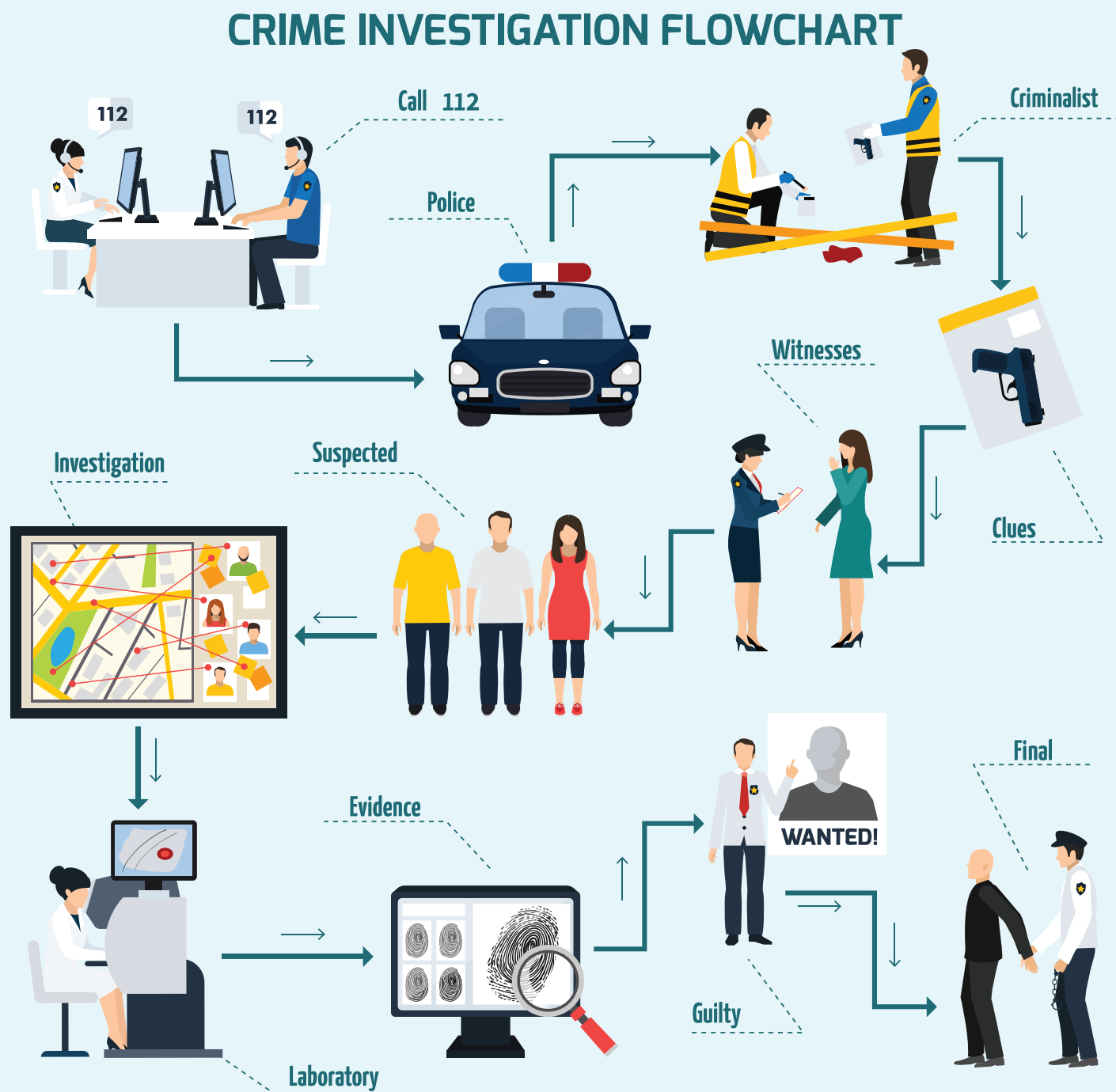
ROLE OF FORENSIC DNA IN SEXUAL ASSAULT & CHILD ABUSE CASES



DNA evidence is playing a significant role in sexual assault and child abuse cases throughout the country, to convict the guilty as well as to exonerate the innocent. This augmented role has placed greater responsibility on investigating agencies and medical practitioners to understand the potential significance of DNA evidence in Criminal Justice System.

STRENGTH OF DNA EVIDENCE

DNA is a blue print of life. It remains same in all body cells of an individual through out his/her life. Therefore, DNA evidence collected from a crime scene can be used to link a suspect to a heinous crime. During a sexual assault case, biological evidence such as hair, skin cells, semen, or blood may left on the victim's body or other locations of the crime scene. Properly collected biological samples from crime scene will result in sufficient amount of DNA that can be compared with reference sample confirming the presence or absence of a suspect at the scene of the crime.



IDENTIFICATION OF DNA EVIDENCE

Trained investigators should look for DNA evidence at locations that are relevant to the case, such as the scene where the assault took place. DNA evidence can also be collected from the body and clothes of victim/accused during medical examination.

AUTHENTICATION AND INTEGRITY OF DNA EVIDENCE

- * Maintain the chain of custody
- * Documentation of each & every evidence
- * Videography & still photography
- * Maintain the integrity of evidence sample.
- * Preserve & store as per recommended guidelines.
- * Label, seal and transport Properly



EVIDENCE COLLECTION

Investigating agencies and Medical practitioners should be aware of important issues involved in identification, collection, transportation, and storage of DNA evidence. A medical examination should be conducted immediately after the assault to treat any injuries, test for sexually transmitted diseases, and collect forensic evidence for DNA examination. Victims/accused of sexual assault should not change clothes, shower, or wash any part of their body after the assault. Evidence as semen, saliva, and skin cells found on clothing, under fingernails, or any secretion in the vaginal, anal, or mouth region should be collected by a medical officer or sexual assault nurse examiner, then preserved and transported. The examiner should also collect reference blood samples from the victim/deceased and accused. A reference samples of victim/accused are used to compare known DNA from the victim/accused with that of other DNA evidence found at the crime scene to determine possible suspect (s).

METHOD OF USING - STANDARD MATERIAL FOR EVIDENCE SAMPLE COLLECTION

- * Use pre-sterilized disposable items
- * Card board box or paper envelops for storage of evidence clothes
- * Sterilized swabs/gauzes/surface swabs
- * Sterilized plastic containers for tissue samples
- * FTA cards/EDTA vacutainers for reference blood sampale.
- * Evidence labelling & sealing by using evidence integrity tape or seal.



CONTAMINATION & PRESERVATION ISSUES

DNA evidence may get contaminated when DNA from unknown source gets mixed with relevant evidence of the case. To avoid contamination investigators & laboratory personnel should always wear protective clothing, use clean instruments, and avoid touching other objects, including their own body, when handling evidence. Environmental factors such as heat and humidity degrade DNA e.g. wet or moist evidence packed in plastic bag promotes growth of bacteria/fungi that can destroy DNA evidence. Therefore, biological evidence should be completely air dried, packed in paper envelope and labelled for proper storage to avoid the risk of degradation.