

**A CURRENT  
EDUCATIONAL  
BULLETIN FOR  
SUBMITTING LAW  
ENFORCEMENT  
AGENCIES**

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DO NOT SUBMIT SPECIMENS  
FOR DNA IN PLASTIC OR GLASS  
CONTAINERS. MOST  
EVIDENCE CANNOT FULLY  
DRY AND MAY DEGRADE IN  
THESE CONTAINERS.

BLOOD TUBES (PURPLE  
CAPPED) IN SEXUAL ASSAULT  
KITS ARE FOR DNA ONLY. IF  
YOUR CASE REQUIRES TOX  
EXAMS FOR DRUGS, SUBMIT  
BLOOD SEPARATELY FROM THE  
KIT IN A GRAY CAPPED TUBE.

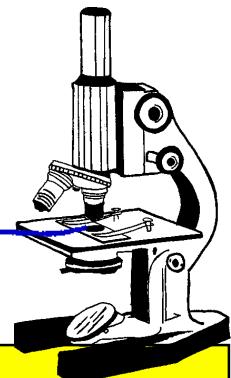
DRUG ANALYSIS ON URINE IS  
SOMETIMES REQUESTED IN  
SEXUAL ASSAULT CASES. LAB  
POLICY REQUIRES STORED  
URINE TO BE FROZEN.  
HOWEVER, URINE IN A KIT  
CANNOT BE STORED IN A  
FREEZER BECAUSE THE BLOOD  
TUBE IN THE KIT MAY BURST  
UPON FREEZING. THEREFORE,  
SUBMIT URINE SEPARATELY  
FROM THE SEXUAL  
ASSAULT KIT SO THE KIT  
MAY BE STORED IN A  
REFRIGERATOR.



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*A Closer Examination From The Benchtop...*

# Under the Scope



MISSOURI STATE HIGHWAY PATROL • CRIME LABORATORY DIVISION

## Lab Clarifies Sexual Assault Kit Usage

Several prepackaged kits are available to assist submitting agencies with their investigations. The purpose of any particular kit, such as for gunshot residue or sexual assault, is to assemble all of the essential supplies, paperwork, and instructions in one container in order to facilitate proper evidence collection and preservation. Once in the lab, kits allow analysts to focus their examinations on the most appropriate and probative pieces of evidence. Recently, the MSHP lab has addressed several questions regarding the Missouri State Victim Sexual Assault kit. Therefore, the lab has provided some background information regarding the development of the current State sexual assault kit, as well as clarified various kit usage and distribution issues.

The MSHP has been responsible for designing, funding, distributing, and processing sexual assault kits for over 20 years, all at no cost to rape victims. In the past, other labs and hospitals across the state also performed essentially the same services using a variety of kits packaged with various components. Consequently, the differences among the kits resulted in inefficient analyses in the DNA and Trace sections of the MSHP lab when a kit other than the State kit was submitted to us. In 1997, the MSHP lab assumed a leadership role in organizing many of the regional Missouri labs in an effort to standardize a single kit for all labs to use. A consortium of labs, including St. Louis Metro, Kansas City Metro, St. Charles, St. Louis County, Joplin, and Cape Girardeau agreed, in principle, to one standard kit funded at the state level and available at no cost to law enforcement agencies, hospitals, or victims throughout the state.

Since the State elected to fund the kit, the MSHP lab created a very basic kit that satisfied analysis requirements for most labs throughout the state. Some labs have chosen to modify the kit for their individual needs by adding various components, such as microscope slides. Even though kit analysis methods may differ among labs because of the items submitted, the same conclusions should be drawn from the evidence no matter

which lab performs the examinations.

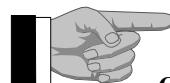
The MSHP lab hopes to continue assisting victims, hospitals, and law enforcement agencies with the State kit. We have found that commercially available kits can be very expensive (upwards of \$17.00 per kit). The MSHP continues to develop and purchase the State kit at a cost of \$3.37 per unit. For the past several years, the Department of Public Safety (DPS) has funded these kits through a limited time grant. We have been fortunate enough to order approximately 4,000 kits each of the past two years. However, we anticipate that the funding may not be available much longer.

Presently, the MSHP General Headquarters Supply Division has State kits in stock and ready for distribution. We routinely distribute kits to regional crime labs and local law enforcement agencies when they visit the MSHP lab. Additionally, each MSHP troop has a supply of kits available. The MSHP lab assumes that the kits are further distributed to any hospital, clinic, or law enforcement agency upon request.

Hospitals and medical personnel should contact their local law enforcement, troop, or regional crime lab for kits, with the understanding that the MSHP has kits and is distributing them free of charge. MSHP and local law enforcement personnel who have these kits on hand, but are not disseminating these kits accordingly, are not accommodating the MSHP lab's requests.

The current State kit provides containers for the following items collected from the victim: pubic hair, head hair and blood standards, pubic hair combings, swabs for semen collection, and underwear. The medical professional utilizing the kit should be aware of the following information about some of the kit components:

- The expiration date on the outside of the kit refers ONLY to the vacuum of the blood tube!!! The manufacturer of the blood tube does not allow us to eliminate the following



CONTINUED  
ON THE BACK...

**CONTINUED FROM THE FRONT...**

## Lab Clarifies Sexual Assault Kit Usage



statement located on the outside of the kit directly under the expiration date: "NOTE: Expiration date applies to blood collection tubes only. If expired, replace with same from hospital or clinic stock."

•Increased cost, exam redundancy, and the potential for improper semen collection necessitated removal of microscope slides for sperm cell detection from vaginal, oral, or rectal swab smears. Slide elimination does not hinder adequate sperm search analysis, as the same swabs used for semen confirmation and subsequent DNA profiling may also be used for sperm cell detection. If the medical professional feels that smears are absolutely necessary, we advise them to use a different swab to create the smear after collecting all of the swabs for semen. Otherwise, most of the sperm cells could be transferred from the swab to the slide, resulting in a low number of sperm on the swab used for DNA. Successful DNA profiling ultimately depends upon the presence of intact sperm cells on the swabs.

•If additional evidence (smears, swabs, tampons, etc.) warrants collection, and an envelope or box is not supplied in the kit for such a collection,

the medical professional should collect the supplemental evidence in an appropriately labeled paper fold, envelope, or paper bag. We recommend paper or cardboard containers for biological specimen collection as they allow the evidence to breathe. Glass tubes or plastic containers do not allow the specimens to dry completely. Consequently, bacterial or fungal growth usually occurs, which severely hampers our ability to obtain results. We often encounter wet tampons packaged in airtight plastic containers within the kit. By the time we can examine the tampon, it is usually in very poor condition. Specimens such as these must be dried and submitted in paper containers for optimal results.

•Frequently, medical professionals submit culture tubes, petri dishes, and other such disease testing materials in the kits. We have optimized the collection kit for the forensic testing that we perform and do not need any additional specimens other than those included in the kit or addressed in the instructions. However, unusual circumstances sometimes exist, and the medical professional should collect anything that appears unique, such as a swab of a bite mark or semen deposited on the body surface. Since our lab cannot perform disease testing, contact your local health department for further information.

•We do not routinely have access to police reports. Therefore, the physician's report in the kit must be completed to gather such information as the time of the last voluntary sexual activity, proximity of semen deposits, and relationship of

victim to suspect. Our analysis approach relies on thorough answers to such questions.

•Hospitals or clinics often allow medical professionals to open additional kits just to obtain certain components to add to the kit they are collecting. If medical professionals continue to open kits just for envelopes or swabs, the cost of the kit will effectively increase. Ultimately, Missouri taxpayers bear the cost of these kits. Therefore, supplementing the kit with supplies from hospital inventory comes at a negligible cost and should be considered before cannibalizing additional kits.

•Do not place the kit in a container with other evidence, such as clothing, since the kit requires refrigerated storage conditions. Moreover, do not complicate lab processing by placing the kit in redundant outer packaging. Simply seal the kit properly, and submit it.

**A Final note:** The Missouri State Victim Sexual Assault kit often times provides the only link between a rape victim and a suspect. Valuable evidence can only be preserved if these kits are distributed and used properly. If agencies do not have kits on hand, either the medical professional or the agencies themselves should contact the MSHP lab in Jefferson City to make arrangements to acquire additional kits. If you encounter a problem with the handling or distribution of State sexual assault kits, or if the medical professional collecting evidence for the kit should have any questions, please contact any individual in the DNA section of the MSHP lab at 573-526-6134.

The photograph shows the Missouri State Victim Sexual Assault Kit components arranged on a light blue surface. At the top is a white box labeled 'MISSOURI STATE VICTIM SEXUAL ASSAULT KIT'. Below the box are several items: a white card labeled 'Blood Stain Sample Card', a white card labeled 'L. Elbow Stain', a white card labeled 'A. Pubic Hair Combing', a white card labeled 'B. Pubic Hair Control', a white card labeled 'C. Head Hair Control', a white card labeled 'H. Whole Blood', and a white card labeled 'K. Physician's Report'. To the right of these cards are two small, rectangular, red and white containers labeled 'ZONOBIAZ' and 'ZONOBIAZ'. In the foreground, there is a small orange evidence tag with a black logo.

### MO STATE VICTIM SEXUAL ASSAULT KIT

The Missouri State Victim Sexual Assault kit, available through the State of Missouri, contains the following items, some of which may or may not be collected from a rape victim at the discretion of the medical professional:

- pubic hair standard
- pubic hair combings
- head hair standard
- vaginal swabs
- oral swabs
- rectal swabs
- additional swabs for bite marks, semen deposited on outside surface of the body, etc.
- blood tube for reference standard (purple capped for blood preservation)
- blood stain card
- bag for victim underwear
- physician's report