

Forensics method validated for sexual assault cases

August 7 2014, by Kerry Faulkner



Early evidence kits are self-administered and are precursors to full forensic testing at a hospital. Credit: Debbie Smith, Sexual Assault Resource Centre

The importance of urine in capturing vital evidence of sperm and DNA in sexual assault cases has been proven by WA researchers.

WA Police Sexual Assault Squad, PathWest forensic biologists and Sexual Assault Resource Centre (SARC) doctors collaborated on the research that investigated 100 consecutive alleged rape cases in Western Australia over four years.

Detective Senior Sergeant Stephen Foley says it's imperative police reduce the risk of losing evidence like sperm and DNA after an attack, which can happen when victims wash or urinate.

To capture this evidence, victims are asked to self-administer a series of non-invasive tests from an early evidence kit consisting of swabs and samples, including urine and saliva samples.

The kit is a precursor to full forensic testing at a hospital that can occur hours after the attack, particularly in remote locations.

SARC's Debbie Smith says from their research, Western Australia appears to be the only laboratory in the world that tests urine not only for toxicology (drugs and alcohol), but also for spermatozoa and DNA material.

She says the research highlights for the first time the importance of this urine sample for capturing forensic evidence.

"In the penile-vaginal sexual assault we could see early evidence kits were useful in picking up sperm and in particular urine was an important specimen to collect, coupled with a gauze wipe of the vulva," Dr Smith says.

"Sperm was detected in the early evidence kit in 40 per cent of cases of alleged penile-vaginal [sexual assault](#) when both a [urine sample](#) and a vulval gauze wipe were collected."

PathWest forensic biologist Laurance Webb says scientists target any cellular material in the samples. They decant off the [urine](#) liquid, swabbing a pellet of residual cells to test for DNA material. A smear of the same cellular material is then used to identify any spermatozoa that may be in the sample.

SARC's Maureen Phillips says in some instances early evidence kit specimens captured sperm and DNA that under full-forensic examination tested negative.

"Sperm doesn't last forever on the body; around the mouth it can last only a matter of hours, in other parts of the body like the skin and vagina it lasts for longer," Dr Phillips says.

"There were anecdotally specific examples where if evidence hadn't been collected early, it would be very difficult to investigate the alleged assault or identify the offender."

However, she says no scientific evidence existed previously which supported the effectiveness of early evidence collection.

More information: Details of the research have been published in *Forensic Science Medicine and Pathology*.

www.ncbi.nlm.nih.gov/pubmed/24752424

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