

Post Vasectomy Semen Analysis

A Post-Vasectomy Semen Analysis (PVSA) is used to confirm the effectiveness of a vasectomy and is advised for all clients receiving vasectomy. A semen analysis should be performed 8-16 weeks after a vasectomy. The client should be advised to use additional contraceptive protection or abstain from sexual intercourse until they have confirmation of vasectomy success.

American Urological Association Guidelines

The American Urological Association (AUA) recommends a fresh, uncentrifuged semen sample within two hours of ejaculation to test for sperm motility. Motile sperm disappear within a few weeks after vasectomy. The time to azoospermia (semen contains no sperm) varies; however, by 12 weeks after the vasectomy, 80% of clients have azoospermia. Vasectomy should be considered a failure if any motile sperm are seen on PVSA at six months after vasectomy, in which case repeat vasectomy should be considered.

Clients may stop using other methods of contraception when examination of one well-mixed, uncentrifuged, fresh post-vasectomy semen specimen shows azoospermia or only rare non-motile sperm (RNMS or $\leq 100,000$ non-motile sperm/mL).

PVSA Compliance and Barriers to Completion

PVSA compliance rates are consistently about 50-55% (Bradshaw et al., 2020). A host of barriers can contribute to PVSA compliance, including:

- Access: Limited access to clinics or laboratories that perform PVSA can be a significant barrier, especially in rural or underserved areas.
- Transportation: Lack of transportation or the inconvenience of travel to a clinic or a lab can prevent men from completing the necessary follow-up.
- Time away from work: For some clients, the additional time away from work (beyond the procedure) is a barrier to follow-up.
- Logistical challenges: Coordination of collection, storage, and transport of semen samples can be challenging.

Non-Fresh PVSA Samples and Mail-In Testing

Traditionally, PVSAs are conducted in a laboratory setting with a fresh sample. However, given the challenges associated with PVSA compliance, some clinicians recommend and use mail-in PVSA services. In this case, semen specimens are collected by the client in their own homes. The specimen is sent by mail (following regulations regarding shipping biohazards) to assess only the presence or absence of sperm. Motility cannot be evaluated reliably in a semen sample produced more than two hours before microscopic examination. Recent studies have suggested that:

- Mail-in strategies significantly increased compliance with PVSA with similar failure detection rates (Atkinson et al., 2022).
- There is a strong correlation between fresh and non-fresh samples, suggesting that the mail-in tests may be effective in measuring vasectomy success (Samplaski et al., 2021).
- Mail-in approaches can improve the ease, comfort, and efficiency of PVSA for clients and providers (Samplaski et al., 2021).
- Trends of serial PVSAs can be used to determine the procedure's success (Agarwal et al., 2022).

Sample Mail-In PVSA Protocol

- Provide the client with a PVSA mail kit with detailed use and return shipping instructions to be completed 12 weeks after the procedure.
- When reviewing laboratory results, the procedure is considered successful if no sperm are present. No further testing is required.
- If sperm are present, the client should be asked to provide a second non-fresh semen specimen one month later using another PVSA mail kit. The patient should be counseled to continue using another form of contraception. If no sperm are present in the second specimen, the procedure is considered successful, and no further testing is required.
- If any sperm are present in the second non-fresh semen specimen, repeat testing with a fresh specimen must be performed for motility.
- The vasectomy is considered successful if the uncentrifuged, fresh semen specimen shows azoospermia or only rare non-motile sperm (RNMS or $\leq 100,000$ non-motile sperm/mL).
- If $> 100,000$ non-motile sperm/mL persist beyond six months after vasectomy, then trends of serial PVSAs and clinical judgment should be used to decide whether the vasectomy is a failure and whether repeat vasectomy should be considered.

References

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