

# VASECTOMY: EVIDENCE-BASED PRACTICES TO IMPROVE EFFECTIVENESS

## KEY POINTS

### **Policy-makers:**

Vasectomy is a safe, effective, low-cost form of permanent contraception, making it an important part of a balanced method mix.

### **Providers:**

Techniques such as cautery and fascial interposition increase vasectomy effectiveness.

Vasectomy effectiveness is dependent not only on the techniques used but also on clients' adherence to back-up contraception for a full 12 weeks after the procedure.

Counseling messages should include that, although rare, vasectomy failures can occur; that back-up contraception is critical for 12 weeks post-vasectomy; and that men should not undergo the procedure unless they are certain they do not want more children.

### **Clients:**

The vasectomy procedure is brief and almost painless, and is simpler and safer than female sterilization.

## SUMMARY

Techniques such as cautery and fascial interposition can improve the effectiveness of vasectomy, making it one of the safest, least invasive, and most effective forms of permanent contraception. However, clients should always be counseled on the small possibility of vasectomy failure, the importance of using another method of contraception for the entire 12 weeks following surgery, and the permanence of the procedure.

## OVERVIEW

Vasectomy is a safe, effective, low-cost permanent method of contraception. It is a minor surgical procedure in which the *vas deferentia*—the two tubes that carry sperm from the testicles to the penis—are interrupted so that sperm can no longer enter the semen. The procedure is brief and almost painless, and is simpler and safer than female sterilization. It generally takes 15 minutes or less when performed by a trained surgeon, and complications associated with the procedure are infrequent. Although reversal is possible, it is expensive and often unsuccessful. Therefore, clients should be counseled about the permanence of vasectomy and to not undergo the procedure unless they are certain they do not want more children.

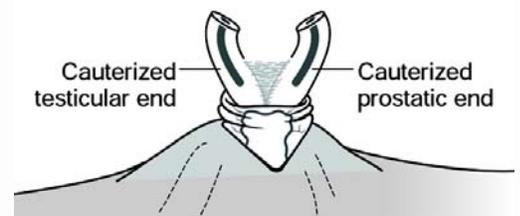
Failure rates for vasectomy are often reported to be less than 1 percent, but the skill of the provider and the surgical techniques used are key to obtaining the best results. Although failure may be more common than previously thought, recent evidence from Nepal<sup>1</sup> shows that even when less effective surgical techniques are used, pregnancy rates are only 2 percent in the first year and 4 percent in the three years following the procedure. Vasectomy is also an extremely low-cost contraceptive option. Depending on the setting, vasectomy can be one of the most economical contraceptives over time for both clients and the health system.<sup>2</sup>

## THE NO-SCALPEL APPROACH TO THE VAS IS THE BEST APPROACH

All vasectomy methods involve first accessing the *vas* and then using special techniques to occlude, or block, it. The no-scalpel approach for accessing the *vas* requires a shorter operating time and is associated with less pain and fewer complications than the traditional scalpel approach.<sup>3</sup> In settings where the no-scalpel approach is not available or cannot be performed, however, skilled surgeons can obtain good results with the scalpel approach.

## CAUTERY AND FASCIAL INTERPOSITION INCREASE VASECTOMY EFFECTIVENESS

Worldwide, the most common technique for occluding the *vas* is ligation and excision, which involves tying the *vas* closed in two places and removing the short segment between the two ties. Cautery is an alternative, highly effective technique in which a surgeon uses an electrode or a hot wire to block about 1 cm of the inside of each end of the *vas*, producing scars that prevent sperm transport (see Figure 1). Thermal cautery, in which a hot wire is used, may be an appropriate occlusion technique in many parts of the world (using low-cost devices powered by AA batteries).



**Figure 1: Cautery.** Reprinted from: EngenderHealth. 2003. *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons, Third Edition.* New York. Used with permission.

Most occlusion techniques can also be performed with fascial interposition, a technique in which the sheath covering the *vas* is pulled over one of the cut ends of the *vas* and the end is sewn shut, creating a natural tissue barrier (see Figure 2). Research has shown that adding fascial interposition to ligation and excision significantly improves vasectomy effectiveness.<sup>4</sup> Data also show that the use of cautery improves effectiveness even more, by improving time to vasectomy success and decreasing early failures.<sup>5</sup> Although fewer data are available on the benefits of adding fascial interposition to cautery, thermal cautery plus fascial interposition is likely the most effective method of occlusion.



**Figure 2: Fascial Interposition.** Reprinted from: EngenderHealth. 2003. *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons, Third Edition.* New York. Used with permission.

### A SECOND CONTRACEPTIVE METHOD SHOULD BE USED FOR 12 WEEKS FOLLOWING VASECTOMY

Because it takes time for the *vas* to become completely clear of sperm, the World Health Organization recommends that clients be counseled to use a second contraceptive method for 12 weeks (three months) following vasectomy.<sup>6</sup> Although guidelines have typically recommended a waiting period of 12 weeks or 20 ejaculations, recent research has shown that the 12-week waiting period is significantly more reliable.<sup>7</sup>

### WHERE AVAILABLE, SEMEN ANALYSIS SHOULD BE OFFERED TO CONFIRM VASECTOMY SUCCESS

In high-resource settings, post-vasectomy semen analysis should be used to confirm vasectomy success. Although success is usually defined as no sperm in the semen three months after a vasectomy, a persistent small number of non-motile sperm (fewer than 100,000 per ml) is not evidence of vasectomy failure.<sup>8</sup> Where semen analysis is not available, counseling clients to use a second contraceptive method for the first 12 weeks after surgery is especially critical.

### RECANALIZATION CAN LEAD TO PREGNANCY AFTER VASECTOMY

Surgical error, infidelity, and not using a back-up method of contraception for at least 12 weeks following a vasectomy are all possible reasons for pregnancy after the procedure. But most pregnancies after vasectomy are caused by recanalization, a spontaneous reconnection of the two ends of the *vas*. The risk of recanalization appears to be related to the surgical techniques used during the procedure, being highest when ligation and excision are used alone and lowest when thermal cautery plus fascial interposition are used.<sup>9</sup> Still, clients should be counseled about the possibility of vasectomy failure so that an unexpected pregnancy is not assumed to be the result of infidelity. Men should be advised that if a pregnancy occurs, they should return to their vasectomy clinic or provider.

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