Female and male Sterilisation

Advanced slide kit complementing the soon available WHO training tool www.fptraining.org
Female Sterilisation

Advanced slide kit complementing the soon available WHO training tool www.fptraining.org
Contents
Female Sterilisation

To enable teachers to understand and explain:

- Introduction
- Surgical planning
- Postpartum sterilisation
- Interval sterilisation
- Laparoscopic sterilisation
- Hysteroscopic sterilisation Essure
- Preoperative counselling
- Contraceptive failure rates
- Causes of failed sterilisation
- Potential post-sterilisation effects
- Risk of regret
- Opportunistic bilateral salpingectomy
Female sterilisation can be defined as permanent pregnancy prevention for women, by occluding the fallopian tubes, called tubal ligation. Female sterilisation is the most common contraceptive method worldwide, used by 19 percent of all women ages 15 to 49 years. Reliance on female sterilisation is highest in Latin America and the Caribbean and Asia, and lowest in Europe and Africa. Worldwide, the female-to-male sterilisation ratio is 3 to 1. In general, the frequency of female sterilisation is related to factors like age, race, education, and time of life. The only indication for sterilisation is the patient's and eventually also her partners' desire for permanent contraception. Restrictions include age and mental illness or disability. In many countries there are legal restrictions on these items,
Surgical planning for female sterilisation is predominantly related to pregnancy. Pregnancy determines the timing of the procedure and the surgical approach, abdominal, laparoscopic or hysteroscopic. The surgical approach determines the setting: inpatient for laparotomy and laparoscopy, and ambulatory for hysteroscopy. The surgical approach also determines the tubal occlusion method. Decisions on these items should also be based upon patient preference, surgical history, medical comorbidities, access to services, experience gynaecologist, costs, and insurance coverage.
Postpartum sterilisation is typically performed at the time of caesarean delivery through the caesarean laparotomy incision, or within the first 24–48 h after vaginal delivery, through an infra-umbilical incision.

Postpartum sterilisation is suitable for women who express, before or during their pregnancy, a desire for sterilisation. Women who have an early pregnancy failure or an unwanted pregnancy may opt for this procedure, which is then called postabortion sterilisation.

In the absence of significant health and safety concerns, every effort should be made to provide postpartum sterilisation during the patient’s stay in hospital, not only for her convenience but especially to avoid deferring the procedure, as this might result in an unplanned pregnancy. However, postpartum sterilisation may have to be deferred due to obstetric complications such as eclampsia, sepsis or haemorrhage, concern about neonatal health, or even logistical issues (e.g. availability of operating theatre and staff).
The method of tubal occlusion via laparotomy generally involves excision of a segment in the midline of the fallopian tube, termed a partial salpingectomy. Most widely used are the Pomeroy and Parkland methods, which differ only in whether the tubal stumps are secured together or separately. Filshie clips may also be used, although failure rates for postpartum sterilisation with the titanium clip has been reported to be higher, ranging from no failures to 8.4%.

Distal fimbriectomy alone is not recommended, because of higher failure rates, presumably related to the risk of patent residual tubal lumens.

Complete bilateral salpingectomy is not routinely performed, due to concern for additional bleeding from an enlarged postpartum vasculature.
Interval sterilisation is defined as sterilisation performed outside the postpartum period, which is defined as six weeks after birth. Interval sterilisation is the only option for non-pregnant women.

Options for a surgical approach for interval sterilisation are predominantly laparoscopy or hysteroscopy, which both can be done as outpatients’ procedures, sometimes (mini)laparotomy especially in developing countries, or even hysterectomy if there are other indications such as abnormal bleeding, pelvic pain, or pelvic organ prolapse.

For pregnant women, the decision between a postpartum or interval sterilisation procedure should be based primarily on woman’s preference, but may also be subject to logistical issues in the provision and availability of postpartum sterilisation.

The clinical relevance of differences in efficacy is negligible, but the percentage of major and minor morbidities is a bit lower for interval procedures.

Preferred laparoscopic tubal ligation techniques are:
- Bipolar electrosurgery, which employs reusable instrumentation and therefore has a lower cost, but may carry a greater risk of ectopic pregnancy.
- Titanium Filshie clip and the silicone Falope ring, as they minimise tubal damage, resulting in an increased potential for improved reversibility; however, they should not be used in women with known tubal disease. The Filshie clip is to be preferred above the Falope ring, as it is associated with a lower risk of mesosalpingeal injury and less post-procedural pain.
- Complete salpingectomy, which is technically more difficult and may have an increased risk of complications in women with significant pelvic adhesions and endometriosis or abnormal anatomy. It is associated with an increased surgical time of approximately 10 min.
To be avoided are:
- Excision of the proximal isthmus, as it may result in fistula formation at the interstitial end of the tube.
- Excision of the distal portion of the tube, as it may increase the risk of injuring adjacent structures.
- Distal fimbriectomy, as this has been associated with higher risk of sterilisation failure.
Advantages of the laparoscopic procedure are that it is successful at first attempt in 99% of cases, and immediately effective, so there is no need for additional contraception or confirmative imaging after 3 months. Laparoscopic sterilisation can safely be performed at the time of a uterine evacuation for induced or spontaneous abortion. The success rate of reversal is high and subsequent pelvic procedures (e.g. some types of endometrial ablation) remain possible.

Immediate complications from laparoscopic sterilisation may include:
- Bleeding from the tube or mesosalpinx due to excessive traction during surgery, or from trauma during placement of occlusive devices. This risk is lower during application of the clip compared with the silicone band.
- Injury to nearby structures such as the infundibulopelvic ligament by excessive electrosurgery, in the case of salpingectomy, which might compromise ovarian blood flow.
- Conversion from laparoscopy to laparotomy due to complications specific to the laparoscopic technique, although the rate is low.
- Postoperative pain, which is associated more with the tubal ring than with electrosurgery and the clip. A 5 ml drip of 0.5% bupivacaine along the tube prior to tubal occlusion has been found to decrease postoperative pain.

Delayed complications are:
- Ectopic pregnancy, the rate of which is highest with bipolar electrosurgery, but lower with Filshie clip and postpartum partial salpingectomy.
- Device migration or expulsion of the clip via the urethra, bladder, vagina or rectum are uncommon events and are not associated with failed tubal occlusion or other significant morbidity. Falope rings are often seen to be peritonealised and still attached to the mesosalpinx, or are even found elsewhere in the pelvis, but there are no reports of failure or adverse outcomes related to migration.

At the moment, only one hysteroscopic sterilisation device is available: the microinsert system Essure.
The device consists of an inner coil of stainless steel and polyethylene fibers, and an outer coil of nickel-titanium, and is 4 cm long and 1 to 2 mm wide when deployed.
The device is placed under hysteroscopic guidance in the proximal fallopian tube.
After placement, the PET fibers stimulate benign tissue growth, that surrounds and infiltrates the device over the course of several weeks, resulting in tubal occlusion.
Twelve weeks after placement, a hysterosalpingogram or ultrasound must be performed to confirm tubal occlusion.
Until that time, contraception must be used.

Advantages of hysteroscopic sterilization are that the procedure can be done under minimal or no anaesthesia in an office setting, making it cost-effective and time-efficient. No abdominal incision is needed and there is less perioperative pain and a shorter recovery period; and it can potentially be performed in women with extensive pelvic adhesions, and in women with comorbidities, such as obesity and diabetes.
Disadvantages are the need for contraception for at least 3 months post-procedure and the need for an imaging study to confirm tubal occlusion, which in turn is dependent on the compliance of the patient with that follow-up study, which varies from 13% to 94%, due to barriers such as scheduling, insurance coverage and equipment limitations.

Other disadvantages are that successful bilateral placement with the first attempt is not possible in 6–8% of patients; there is a risk of device perforation or malposition; there is increasing concern about potential long-term effects such as pelvic and abdominal pain, heavy or irregular menses, and headache; and electrical conductivity of the microinserts may limit the use of unipolar electrosurgery for subsequent pelvic procedures such as endometrial ablation.

Specific contraindications include: less than 6 weeks from a delivery or abortion, active or recent pelvic infection, uterine or tubal pathology that impedes access to one or both tubal ostia including previous tubal ligation, and known allergy to contrast media.

Risk factors for adverse outcomes are a history of any chronic pain conditions, as such women are more likely to develop Essure-related postoperative pain. Additionally, patients with a known history of autoimmune disease, metal allergy or heavy menstrual flow may be at risk of increased inflammatory response to the device.
All counselling about female sterilisation should preferably be done with the couple, and begin with a description of the full range of contraceptive options, including vasectomy, as well as long-acting reversible methods. Counselling also includes description of the risks and benefits of the different procedures, and their efficacy and costs. The patient’s expectations regarding permanent sterility should be discussed, including the limited options for reversal in case of regret, and that future pregnancy may be possible only by IVF.

The patient’s medical history should be explored to reveal any factors which may make sterilisation more difficult, or increase surgical or anaesthetic risks such as morbid obesity, intra-abdominal adhesions or significant medical comorbidity. For women with history of a chronic pain condition, laparoscopic sterilisation is preferred above a hysteroscopic procedure.

In particular, women undergoing a hysteroscopic Essure procedure should be counselled that the procedure is not possible in approximately 6–8% of attempts, due to impaired visualisation of the tubal ostia. They should also be counselled about the reported adverse events, and that some of these events might result in device removal by abdominal surgery. Furthermore, women should be informed that for 3 months after the procedure additional contraception must be used until an additional test has confirmed correct placement of the device.

Of utmost importance is that clinicians do their best to ascertain the patient’s capacity for decision-making. When appropriate, the clinician should also seek counsel of the patient’s family and caregivers.

In general, for all current female sterilisation methods, the contraceptive failure rate in the first year of use is 0.5%.

### Contraceptive failure rates (2)

<table>
<thead>
<tr>
<th>Occlusion method</th>
<th>Failure rates per 1000 women in 10 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>All methods</td>
<td>18.5 (15.1– 21.8)</td>
</tr>
<tr>
<td>Postpartum partial salpingectomy</td>
<td>7.5 (2.7– 12.3)</td>
</tr>
<tr>
<td>Falope ring</td>
<td>17.7 (10.1 – 25.3)</td>
</tr>
<tr>
<td>Interval partial salpingectomy</td>
<td>20.1</td>
</tr>
<tr>
<td>Bipolar electrocautery</td>
<td>24.8 (16.2 – 33.3)</td>
</tr>
<tr>
<td>Filshie clip</td>
<td>1.2 after 1 year; 2.4 after 5 years?</td>
</tr>
<tr>
<td>Essure hysteroscopy</td>
<td>1.28-3.14 within 5 years</td>
</tr>
</tbody>
</table>

Ref 1-12
With increasing years, the sterilisation failure rates of all methods increase. It is important to tell your patients that, in general, for all current female sterilisation methods the cumulative contraceptive failure rate over 10 years is almost 2%, although this percentage may vary depending on the occlusion method used.

According to the CREST study, laparoscopic sterilisation failure rates over 10 years vary from 7.5 per 1000 women for postpartum partial salpingectomy and the old-fashioned unipolar electrocautery, to 17.7 for the Falope ring, 20.1 for interval partial salpingectomy and 24.8 for bipolar electrocautery. The highest, 36.5 per 1000 women, were reported for the Hulka clip, which method has now been abandoned.

Much lower are the reported percentages for the Filshie clip and the hysteroscopic Essure, which are approximately 1.2–3.1 per 1000 women; however, most studies had less than 5 years of follow-up, and only successfully completed Essure procedures were incorporated. More recent studies reported comparable results also for bipolar electrosurgery, due to improved technique.

In the CREST study, approximately one in three pregnancies that occurred after sterilisation were ectopic, with a comparable increased risk of ectopic pregnancy for laparoscopic and hysteroscopic procedures.

Presumed mechanisms for failure resulting in unintended pregnancy following surgical sterilisation include:
• Luteal phase pregnancy, which has been estimated to occur in 0.23–1.7% of interval sterilisation procedures.
• Wrong structure occluded or resected.
• Incomplete tubal occlusion from a defective device, improper positioning or incomplete desiccation.
• Tuboperitoneal fistula formation and spontaneous recanalisation of the tubal lumen.
Sterilisation appears to be associated primarily with improvements of menses, such as a modest decrease in the volume of flow and duration of menstrual bleeding, as well as less menstrual pain; but there are also some adverse effects, such as an increase in cycle irregularity. However, other aetiological factors of these menstrual changes may be due to stopping a previous hormonal method, or simply ageing of the woman.

Studies of hormone levels and ovarian reserve have demonstrated no significant changes after sterilisation, or inconsistent effects. Also, following tubal ligation by electrocoagulation no changes in hormones were found. There is therefore no strong evidence at this time that women undergoing sterilisation will experience earlier onset of menopause.

There are numerous reports of persistent pelvic pain in women following placement of microinserts by hysteroscopy, including dysmenorrhoea, dyspareunia, ovulatory pain and other pain. A retrospective analysis of almost 500 women reported pelvic pain within the first 3 months in 8.1% of patients, and persistent pelvic pain after 3 months in 4.2%. There was a sixfold increase in the risk of both acute and chronic pain in women with a previous diagnosis of a chronic pain condition such as chronic pelvic pain, chronic low back pain, chronic headache or fibromyalgia.

Sexual function appears unchanged or improved after female sterilisation compared with non-sterilised women. post-sterilisation regret is the only factor that appears to be a predictor of decreased sexual interest and pleasure.

Within 5 years following sterilisation, women had a higher likelihood of undergoing hysterectomy, compared with women whose partners had a vasectomy or women who were not sterilised. Most experts suggest that women who chose surgical sterilisation in the past may now be more likely to seek medical treatment of late gynaecological disorders such as pelvic pain and menstrual complaints.

Some concern had been raised regarding an increase in the risk of breast cancer following sterilisation. However, this has not been found in analyses of comparative studies.

Rates of regret after sterilisation vary widely among studies, due to significant regional, population and methodological differences. Rates of request for reversal appear more consistent, with most studies finding rates between 1% and 4%.
Young age at time of sterilisation is the strongest predictor, not only of sterilisation regret but also of seeking information about sterilisation reversal, obtaining a reversal, or undergoing a post-sterilisation IVF procedure. However, there is no established threshold of an age that is too young to undergo sterilisation. Rather, the risk of regret appears to decrease incrementally with increasing age. This is nicely shown in the CREST study, in which the cumulative 14 year probability of requesting reversal was 40.4% among those sterilised between the ages of 18 and 24, 15.6% among those 25–30, 8.2% among those 31–35, and 4.4% among those over the age of 35. The 14 year cumulative risk of regret was 20.3% among women ≤30 years and 5.9% among women >30 years.

These figures should be clearly explained during counselling, as sometimes unplanned events happen in life, such as divorce or the death of a child, and the probability of finding a new partner and wanting to have children with him are simply higher in younger women.

Despite relatively high rates of regret, the number of women who actually undergo a reversal procedure or IVF remains quite low, being 2.1% among women aged ≤30 years at the time of sterilisation and 0.2% among women >30 years. This is due to the many barriers to obtaining a tubal reversal or IVF, including limited availability, the need to undergo an invasive procedure, and the expense.

The probability of ongoing pregnancy after tubal reversal is age-related, with estimated ongoing pregnancy rates of 63% for women under aged 35, 44% between the ages of 35 and 40, and only 5% for women over 40 years old.

Next to age, other significant risk factors for regret from the 14 year cumulative CREST data include:
- Non-white race, with an adjusted risk ratio of 1.3.
- Being unmarried or being in an unstable relationship at the time of sterilisation, compared with married women or women in a stable relationship.
- Postpartum sterilisation after vaginal and caesarean delivery, compared with interval sterilisation.
- Sterilisation 2–3 years after the birth of the youngest child, compared with women with 8 years or more since their last delivery, or no previous births.
- National health insurance, compared with women with private insurance.

Factors that have been inconsistently associated with regret include conflict between spouses regarding the sterilisation decision, low socioeconomic status, low educational attainment, low labour force activity, and living in a rural area.

And, most importantly, factors not associated with regret include parity, as well as nulliparity, and postabortion sterilisation.
In 2010, opportunistic salpingectomy was introduced, which is the removal of the fallopian tubes for primary prevention of epithelial carcinoma of the fallopian tube, ovary or peritoneum in a woman at average risk. Rationale for this procedure is based on findings of many recent studies, suggesting that tubal neoplasia is the primary lesion in high-grade serous pelvic carcinomas and that these lesions spread to the ovary and peritoneum. For example:

- Tubal ligation has been shown to be associated with a decrease in ovarian cancer risk in average-risk women and in high-risk women.

- Bilateral salpingo-oophorectomy after completion of childbearing or by age 40 years, in women with BRCA1 and BRCA2 mutations who have a 40–60% and a 20–30% lifetime risk of developing ovarian cancer, reduces this risk by more than 80%. In these women, evaluation of the fallopian tube specimens revealed occult tubal carcinomas and preinvasive lesions in 5–15% of cases; by contrast, intensive examination of the ovaries failed to find premalignant or malignant epithelial changes.

- Tubal involvement has been found in up to 75% of women diagnosed with ovarian or primary peritoneal high-grade serous carcinoma, including the presence of fimbrial serous tubal intraepithelial neoplasia in 40–60%.
Current advice in general practice is to routinely discuss the option of opportunistic bilateral salpingectomy with the patient, and review the theoretical potential for increased effectiveness, the reduced risk of needing subsequent surgery for ectopic pregnancy or hydrosalpinx, the theoretically reduced risk of ovarian cancer (which is not yet proven), and the minimally increased risk of surgical complications or additional time for the procedure. Other important concerns are the impossibility of reversal, and the possible impact on ovarian function, as some data suggest that bilateral salpingectomy decreases ovarian reserve, potentially resulting in an increased risk of premature postmenopause.
Topic: Female sterilisation

Summary female sterilisation

- Pregnancy is key factor in determining timing, surgical approach and occlusion method
- Interval sterilisation can be performed by laparoscopy, hysteroscopy and minilaparotomy
- Unwanted pregnancy after sterilisation occurs in around 2% of women
- 1 in 3 unwanted pregnancies after sterilisation is ectopic
- Laparoscopic sterilisation is immediately effective, can be done at time evacuation for abortion, and is mostly reversible, but needs general anaesthesia
- Hysteroscopic sterilisation is cheap, fast, needs no anaesthesia, and can be done in the presence of pelvic problems, but contraception is needed until confirmation of effectiveness, it is irreversible and more women complain of pelvic pain later on
- Young age is most important factor of sterilisation regret
Male Sterilisation

Advanced slide kit complementing the soon available WHO training tool www.fptraining.org
Contents
male sterilisation

To enable teachers to understand and explain:

- Introduction
- Procedures and techniques
- Postoperative care
- Confirmation of sterility
- Contraceptive failure rates
- Contraindications
- Complications
- Associated morbidity concerns
- Counselling
- Vasectomy reversal
Vasectomy is the most effective available mode of male contraception. The procedure involves interruption or occlusion of the vas deferens and is typically performed in an outpatient setting under local anaesthesia. Compared with tubal ligation, vasectomy is safer, less costly, and has a significantly shorter post-procedure recovery time. In fact, vasectomy is the most cost-effective method of permanent contraception.

Nonetheless, worldwide, tubal ligation is performed three times more often than vasectomy. This suggests that lower acceptance of vasectomy may be attributed to a variety of reasons, including misperceptions of the procedure and its side effects. Moreover, vasectomy requires the male partner's willingness to undergo the procedure, and assumes that the woman will not have any other male partners.

Similar to hysteroscopic sterilisation, it is not effective right away and requires back-up contraception until azoospermia is confirmed.

The most common technique involves transection of the vas deferens. Vasal occlusion using a silicone rubber plug and percutaneous vasal injection of chemicals, are still largely investigational.

The conventional vasectomy approach involves bilateral scrotal incisions, through which the vas deferens is mobilised and transected. With the no-scalpel technique, instead of incisions a puncture is made through the scrotal skin overlying the vas deferens and widened only enough to externalise the vas deferens for transection.

Generally, a segment 10–15 mm in length is removed; it may be sent for pathological confirmation, which can be helpful in the event of vasectomy failure. The length of vas that should be removed to prevent recanalisation is controversial, as rates of recanalisation more likely reflect the technique used to manage the vasal ends.

Intraluminal fulguration of 1.5 cm of the prostatic end of the vas, with fascial interposition between the prostatic and testicular vasal ends, appears to be the most effective method. The rationale for leaving the testicular end open is that sperm leakage from the testicular cut end prevents inspissation, increased epididymal pressure and epididymal rupture, and allows a small sperm granuloma to form. In general, using ligatures or clips should be avoided.
After surgery, the dressing and scrotal support should be maintained for at least 48 h. An ice pack intermittently applied to the scrotum for 48 h also helps decrease discomfort and swelling.

Significant post-procedure pain is common in up to 30% of patients, but is usually self-limited. Paracetamol or ibuprofen usually provides sufficient analgesia.

Postoperative instructions should be reviewed with the patient. Mild pain, swelling and bruising are normal for the first 2–3 days; blood in the ejaculate is common and will typically clear after 3–4 days. The patient should phone if there is increasing pain, bleeding from the incision site, fever or significant scrotal swelling.

Bed rest or quiet activity is recommended for the first 24 h following a vasectomy. The patient may return to light work in 2–3 days, but should refrain from heavy work, sports or lifting for 1 week. Sexual activity should be avoided for 1 week.

The patient and his partner should be reminded to use an alternative method of contraception until semen analysis has confirmed the absence of sperm in the ejaculate.
The time to achieve azoospermia declines with increasing number of ejaculations following vasectomy, and increases with patient age. Generally, 80 percent of patients are azoospermic after three months and 20 ejaculations, and a single sample is sufficient to confirm sterility. If there are motile sperm at the three month check-up, a follow-up test is performed one to two months later. Vasectomy is considered a failure, if motile sperm are confirmed on this follow up examination, and the patient should be advised to use alternative contraception and potentially undergo a second procedure.

A small proportion of patients, however, do not achieve complete azoospermia, but consistently have non-motile sperm. This is probably clinically insignificant, and these men can be given cautious assurance of success, provided they have: a low sperm count (<10,000/mL), all sperm are immotile, seven months have elapsed from vasectomy, and there have been a minimum of 24 ejaculations.


Efficacy rates are comparable to those of female sterilisation.

Long-term data for the efficacy of vasectomy are limited, and outcomes depend on whether there is confirmation of azoospermia.

Pregnancy rates at 1 year with confirmed azoospermia have been reported to be as low as 0.02%, and as high as 0.74%, in retrospective surveys of women in whose partners assessment of sperm count was not documented. In this latter group, the pregnancy rate was 1.1% at 2, 3 and 5 years.
Coagulation disorders, or presence of a local congenital or acquired anatomic abnormality (e.g. previous scrotal injury, varicocele, hydrocele, scrotal mass, cryptorchidism, inguinal hernia), are relative contraindications to vasectomy.

Other contraindications to vasectomy include the presence of scrotal hematoma, genitourinary, groin or systemic infection, and sperm granuloma; however, the procedure can often be performed if these issues are resolved.
Vasectomy is generally regarded as the safest method of permanent sterilisation. Mortality rates are estimated at 0.5/100,000, major complications at 1 in 1250, and minor complications between 1% and 6%. In one review, vasectomy was estimated to have 12 times lower mortality and 20 times lower major morbidity than tubal ligation.

Complications following vasectomy include haematoma, infection, sperm granuloma and persistent post-vasectomy pain. Haematoma rates and infection rates are lower with the no-scalpel procedure than with the incisional technique.

A sperm granuloma may form when sperm leaks from the testicular side of an open-ended vas. These granulomas are rarely symptomatic and may be protective to the testis and epididymis against increased pressure. Most granulomas will ultimately resorb, but they have been implicated in increased rates of post-vasectomy pain and in vas recanalisation, related to the inflammatory response induced by the antigenic reaction to sperm.
The incidence of ‘troublesome’ post-vasectomy pain is reported by about 15% of men, with pain severe enough to impact quality of life in 2%. The cause of most post-vasectomy pain syndromes is chronic congestive epididymitis. Other causes include the formation of sperm granuloma or nerve entrapment at the vasectomy site.

Therapeutic measures include the administration of NSAIDs and warm baths, local nerve blocks or steroid injections, excision of a palpable granuloma, and ultimately vasectomy reversal or complete epididymectomy.

Vasectomy failure can be due to technical errors, techniques used, recanalisation in about 0.2% of patients, or unprotected intercourse before azoospermia is documented.

Concerns have been raised over potential links between vasectomy and a variety of unproven health consequences, such as cardiovascular disease. However, several studies in humans have found no increased risk of cardiovascular disease following vasectomy.

Whether a prior vasectomy increases a man's risk of getting prostate cancer is controversial, but most evidence suggests that the risk is low. The most extensive study is the Health Professionals’ Follow-up Study, which followed almost 50,000 men for over 24 years and found a cumulative incidence of lethal prostate cancer of 1.6%. However, among the men who developed prostate cancer, the overall risk was slightly increased for men who had a vasectomy compared with those who did not (12.4% vs 12.1%; RR 1.10, 95% CI 1.04–1.17). No association was found for low-grade or localised disease, but there was an increase in high-grade, lethal and advanced prostate cancer.

The risk of testicular cancer is not increased among vasectomised men.
Vasectomy disrupts the blood–testis barrier, resulting in anti-sperm antibodies in 60–80% of patients. There is no association between anti-sperm antibodies and other immune-complex mediated diseases, such as lupus erythematosus, scleroderma, rheumatoid arthritis, or other diseases such as asthma, diabetes mellitus, thyrotoxicosis, multiple sclerosis, myasthenia gravis, inflammatory bowel disease, testicular atrophy or ankylosing spondylitis.

However, a case–control study found a twofold increased risk of kidney stones in men aged 45 years or younger (RR 1.9, 95% CI 1.2–3.1), but not in men older than 45 years. The physiological mechanism for this increased risk is unknown.

Some recent studies are reassuring regarding the relationship between vasectomy and sexual life. One study found that sexual problems are no more prevalent among vasectomised men than they are among non-vasectomised men, and another study reported that vasectomy was not associated with decreased sexual frequency. A third study showed the positive impact of vasectomy on sexual satisfaction of couples.
The clinician should be informed by the patient about:
- Contraception method(s) used.
- Social/family status: whether in a stable relationship, number and ages of children (if any), acceptance of procedure by partner, future family intent.

The patient should be informed by the clinician about:
- The nature of the procedure.
- The potential risks and benefits.
- The failure rates.
- That the procedure results in permanent sterility.
- Alternative contraceptive options.
- The need for interim contraception for a minimum of 3 months.
- A semen analysis prior to assuming sterility.
- The need for ongoing use of condoms to protect against STIs if not in a committed, monogamous relationship.
As might be expected, the strongest predictive factor for a vasectomy reversal is an unstable relationship. Men without children, and men who were older than 30 years at the time of vasectomy, were less likely to request a reversal in the future. There was no correlation with a patient's religion, number of marriages or occupation.

Vasectomy can be reversed successfully in 50–70% of men, using microsurgical techniques. Key determinants of success are the method of vasectomy and the duration of obstruction. For example, open-ended vasectomy reduces the risk of testicular and epididymal damage, and therefore increases reversal success, in contrast with sealing of the testicular side.

Rates decline with increasing time between vasectomy and reversal. A large retrospective study found patency rates of >5%, and a pregnancy rate of approximately 75%, for men who underwent vasectomy less than 3 years prior to reversal. Both rates decreased in a linear fashion as the duration of obstruction increased. After 15 years, the patency rate was 71% and the pregnancy rate was 30%. An important reason for the discrepancy between patency rate and pregnancy rate is the development of antisperm antibodies, which may cause agglutination and immobilisation of the sperms.