



# Contraception and sexually transmitted infections



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## BACKGROUND

Many women seek contraceptive advice from general practitioners. These consultations provide an opportunity to discuss the prevention of sexually transmitted infections (STIs) including human immunodeficiency virus (HIV).

## OBJECTIVE

This article discusses the effect of various contraceptive methods on the transmission of STIs and HIV. It also highlights issues relevant to achieving both contraception and STI/HIV prevention, with a focus on younger women.

## DISCUSSION

There is no ideal method to achieve protection against both pregnancy and STIs/HIV. Counselling about risks of STIs/HIV, providing the option of being tested for bacterial STIs, hepatitis B and HIV at the start of new relationships and promoting condom use for casual sex and concurrent sexual relationships is to be encouraged.

Unplanned pregnancies and bacterial sexually transmitted infections (STIs) are important public health issues. In 2002 there were 5417 terminations of pregnancy in South Australia, equating to a termination rate of 17.2 per 1000 women aged 15–44 years.<sup>1</sup> The incidence of chlamydial infections in Australia has risen from 92.7 per 100 000 in 1998,<sup>2</sup> to 174.7 per 100 000 in the third quarter of 2004.<sup>3</sup> In an Australian phone survey, 23% of Australian women disclosed a history of a termination of pregnancy<sup>4</sup> and around 19% of all respondents self reported having had a STI at some stage of their lives.<sup>5</sup>

## Contraception options – their effect on STI/HIV transmission

While there are a number of options available to protect women against unplanned pregnancy, the male condom is the only widely available method that also reduces the risk of acquiring human immunodeficiency virus (HIV) and other STIs.

### The male condom

Condoms are user dependent and rely on the male partner for effective use. With typical use, the male condom has a pregnancy rate of 14%.<sup>6</sup> The most important factor affecting condom failure is nonuse.<sup>7</sup> A recent Australian survey found that while 90.4% of men self

reported having ever used condoms, only 41% always used condoms with casual partners.<sup>8</sup> Condom use was less likely in men who consumed alcohol in excess of National Health and Medical Research Council guidelines.<sup>8</sup>

The survey also found 23.8% of Australian men had experienced a condom breakage, and 18.1% reported one or more episodes of slippage.<sup>9</sup> In another study, the rate of condom slippage and breakage at last heterosexual intercourse was 1.1% and 3.4% respectively.<sup>10</sup> Slippage has been associated with younger age, less lifetime condom experience and being circumcised,<sup>11</sup> while breakage has been associated with infrequent condom use, rolling the condom on, use of oil based lubricants, duration and intensity of intercourse, and larger penis circumference.<sup>11,12</sup> In one study, 49% of men reported deliberately removing a condom after the beginning of intercourse.<sup>11</sup>

Condoms should not be regarded as able to prevent the transmission of STIs, but rather to reduce the risk.<sup>13</sup> Prospective studies of HIV serodiscordant couples have demonstrated the effectiveness of condoms in preventing HIV transmission when used 100% of the time.<sup>14</sup> The evidence is less conclusive for other STIs.<sup>15,16</sup> An American study found that rates of chlamydia and gonorrhoea were significantly lower in consistent condom users compared

to inconsistent users.<sup>17</sup> Male-to-female transmission of herpes simplex virus (HSV) type 2 has been shown to be significantly reduced with condom use on more than 25% of occasions, however protection has not been demonstrated with female-to-male transmission.<sup>18</sup> A meta-analysis on the effect of condom use on the prevention of clinical and subclinical human papilloma virus (HPV) infection concluded that condoms probably do not prevent infection with HPV.<sup>16</sup>

**The female condom, diaphragms, and the cervical cap**

The female condom probably provides protection against most STIs and HIV, but is not widely available in Australia. The diaphragm and cervical cap are female controlled methods with contraceptive effectiveness in the range of 80–94%.<sup>6</sup> A retrospective study published in 1992 found women using diaphragms had significantly lower rates of gonorrhoea and trichomoniasis than condom users and the control group.<sup>19</sup> The diaphragm and cervical cap would be biologically unlikely to provide protection against HSV, HPV or syphilis.

**Oral contraceptive pill**

The theoretic effectiveness of the oral contraceptive pill (OCP) is greater than 99%, although with typical use pregnancy rates are around 5%.<sup>6</sup> In some studies, the combined oestrogen and progesterone pill has been associated with an increased risk of chlamydial infection.<sup>20</sup> The proposed mechanism for increased risk of STI acquisition in OCP users is a hormonal effect on the cervical ectropion.<sup>21</sup> The OCP's relationship to pelvic inflammatory disease is complex. While use of the OCP has been shown to reduce risk of symptomatic pelvic inflammatory disease,<sup>22</sup> there is some suggestion silent pelvic inflammatory disease infection rates are just as high.<sup>23</sup>

**Implanon and DMPA**

Implanon and depot medroxyprogesterone acetate (DMPA) are effective user independent contraceptives. A prospective cohort study found women using DMPA were 3.6 times more likely to acquire either chlamydia or gonorrhoea than

Table 1. Reasons cited by sexually active year 10 and 12 students for not using condoms the last time they had sex <sup>27</sup>
1. I know my partner's sexual history (35.2%)
2. I trust my partner (33.3%)
3. It just happened (33.1%)
4. I don't like them (21.3%)
5. My partner doesn't like them (18.5%)
6. We have both been tested for HIV/STIs (8.4%)
7. Too embarrassed (3.2%)
8. It's not my responsibility (2.9%)

the control group.<sup>21</sup> Differences between the two groups made interpretation of the results difficult, and there are few adequate biological hypotheses to explain how progesterone could increase the risk of cervical infection.

**Intrauterine devices**

Intrauterine devices such as Mirena and the copper intrauterine device are effective user independent methods of contraception. Their long duration of action make them an attractive and cost effective option for a number of women. There is an increased risk of pelvic inflammatory disease in the first 20 days after insertion of an intrauterine device.<sup>24</sup> After counselling women interested in this form of contraception, it may be advisable to test for (and if required, treat) chlamydia, gonorrhoea, and bacterial vaginosis before insertion. Women at risk of contracting STIs should consider alternative methods of contraception.

**Other methods of contraception**

Vasectomies, tubal ligation and the rhythm method have no effect on STI transmission. Consistent use of the 'withdrawal' method has been shown to significantly reduce the risk of male-to-female HIV transmission.<sup>14</sup>

**The role of sexual history in contraceptive counselling**

Taking a sexual history allows an assessment to be made of an individual's risk of acquiring an STI/HIV infection in addition to determining their contraceptive requirements. Consideration of sexual risk, as well as relationship and lifestyle factors, can assist practitioners in counselling women about suitable contraceptive options.

**Contraception and STI/HIV protection**

In an Australian survey, only 7.1% of respondents with regular cohabiting partners reported consistent condom use.<sup>8</sup> Testing both partners for STIs such as chlamydia, gonorrhoea, hepatitis B, syphilis, and HIV at the start of relationships where sex is negotiated without condoms is advocated. Condoms should be strongly encouraged for sex outside the relationship, casual sexual relationships and concurrent sexual relationships.

**Contraception and STI/HIV protection in young women**

Protection against both unplanned pregnancy and STI/HIV is important in young women and adolescents due to the high incidence of STIs. The rate of chlamydia in Australian females aged 15–19 years is second only to the rates seen in 20–24 years age group.<sup>25</sup>

While over 70% of 18–29 year olds in one study reported using condoms during their first sexual experience,<sup>26</sup> condom use appears to decrease as adolescents age. A survey of Australian high school students found condom use at last sex lower among sexually active year 12 than year 10 students (59.7 vs. 72.4%).<sup>27</sup> Reasons cited by adolescents for not using a condom at their last sexual encounter are listed in Table 1. Other possible reasons for no condom use include sexual coercion, drug or alcohol use, fear of rejection, and condom unavailability.

Combining condom use with a second more reliable form of contraception is an uncommon practice,<sup>28</sup> but should be suggested to adolescents reporting inconsistent condom use and considered at high risk for STI

acquisition on sexual history. Discussion of nonpenetrative forms of sexual activity such as oral sex and mutual masturbation could also be suggested as an alternative lower risk activity.

### Nonconsenting sex

Nonconsenting sex, including 'drug related' and 'date rape' is not an uncommon experience, especially in young women. In an Australian phone survey, 21.1% of women reported a history of sexual coercion, most of which occurred at or before 18 years of age.<sup>29</sup> In a study of Australian high school students, 6.4% of adolescent females reported their last sexual encounter was unwanted, and 25.9% of sexually active year 10 and 12 students reported at least one episode of unwanted sex.<sup>27</sup> If possible, referral to a sexual assault unit for counselling and/or a forensic examination should be considered. Emergency contraception, prophylaxis for chlamydia and hepatitis B vaccination can also be offered.

### Conclusion

When counselling patients about contraceptive options, general practitioners can use the opportunity to take a sexual history and explore ways to minimise the risk of STI/HIV infection, in addition to an unplanned pregnancy.

#### Summary of important points

- The male condom is the only readily available contraceptive that offers protection against STIs/HIV.
- Condoms significantly reduce the risk of HIV, chlamydia and gonorrhoea transmission, but are not as effective against HPV or HSV acquisition.
- Protection against both unplanned pregnancy and STIs/HIV is important for adolescents and young people as they have high rates of STIs, and can be achieved by either consistent condom use or condoms combined with a second form of contraception.

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