

# The importance of condom use – from contraception to solving public health issues

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## Abstract

The condom is the only contraceptive method that can prevent unintended pregnancy and, at the same time, it can offer protection against sexually transmitted diseases, including the human immunodeficiency virus (HIV) infection. With constant and sustained usage, condoms offer the same protection against unintended pregnancy like any other contraceptive method. The advantages of using condoms (low cost, high availability, no adverse events, high level of protection) led to an increase in the frequency of their usage, and at present it has become the primary contraceptive method chosen by young people at the start of their sexual life.

**Keywords:** condom, prevention, contraceptive, HIV

## Rezumat

Prezervativul reprezintă singura metodă contraceptivă ce poate preveni apariția unei sarcini nedorite și, în același timp, oferă protecție față de bolile cu transmitere sexuală, inclusiv infecția cu virusul imunodeficienței umane (HIV). Dacă sunt utilizate corect și constant, prezervativele oferă o protecție în fața unei sarcini nedorite similară cu cea oferită de orice altă metodă contraceptivă hormonală. Avantajele utilizării prezervativelor (cost redus, disponibilitate, lipsa efectelor adverse, nivel înalt de protecție) au dus la creșterea frecvenței utilizării acestora și reprezintă la momentul actual principala metodă contraceptivă aleasă de tineri la debutul vieții sexuale.

**Cuvinte-cheie:** prezervativ, prevenție, contracepție, HIV

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## Importanța utilizării prezervativului – de la contracepție la soluționarea unor probleme de sănătate publică

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## Introduction

The condom is a very efficient contraceptive method, with little or no adverse effects, the only contraceptive method that can decrease the risk of dissemination of sexually transmitted diseases, being in usage from the 19<sup>th</sup> century (the first rubber condom being used in 1855)<sup>(1)</sup>. Until the end of the 19<sup>th</sup> century, the condom became the primary contraceptive method used in Western Europe and in the United States of America – a Great Britain survey ran between 1950 and 1960 showed that around 60% of couples used the condom as their primary contraceptive method. From the '60s, hormonal contraception has become the most used contraceptive method for preventing unintended pregnancies, largely because of its easy use. After the '80s human immunodeficiency virus (HIV) epidemic, the usage of condoms was advertised and encouraged as the only contraceptive method that offers dual protection, as contraception and protection against sexually transmitted diseases (STDs)<sup>(2)</sup>.

## The condom in the prevention of sexually transmitted diseases

The condom represents a key asset in the fight against sexually transmitted diseases, because its precise and regular usage represents a very effective

mean of protection. STDs represent the infections that are transmitted through unprotected sexual intercourse. Some of these infections can be also passed on vertically, from mother to child during pregnancy, labour or *via* contact with contaminated biological products. These infections have a major impact on the health of the patients and, left untreated, can lead to the occurrence of serious neurological diseases, cardiovascular diseases, infertility; also, they can lead to a higher risk of ectopic pregnancy and fetal death *in utero*. According to World Health Organization (WHO), the most frequent sexually transmitted infections are caused by *Trichomonas vaginalis*, *Chlamydia*, *Neisseria gonorrhoea* or by viruses like HIV, herpes simplex, human papillomavirus (HPV), hepatitis B virus or hepatitis C virus<sup>(3)</sup>. HIV infection remains a worldwide health issue, considering that in 2019 approximately 38 million of people were HIV-positive. As of November 2020, HIV infection/AIDS led to the death of over 33 million people<sup>(4)</sup>.

In Romania, the 2018 report of CNSCBT (Centrul Național de Supraveghere și Control al Bolilor Transmisibile; The National Centre of Surveillance and Supervision of Communicable Diseases) concerning the evolution of transmissible diseases, showed that the incidence of syphilis was 3.26 at 100,000 people – 639

cases (in a continuous decline over the past 10 years), the incidence of gonorrhoea cases was 0.23 at 100,000 people – 46 cases (in a continuous decline over the past 5 years), and the incidence of genital infections with *Chlamydia* was 0.015 at 100,000 people (9 cases)<sup>(5)</sup>.

The correct and regular usage of condom from stable couples, in which the female is infected with a high-risk HPV strain and has a high-grade squamous intraepithelial lesion, seem to have a beneficial effect regarding the regression of HPV-induced lesions. A trial performed in The Netherlands in 2003, on 125 couples in which the females had a cervical intraepithelial neoplasia (CIN) lesion associated with a persistent HPV infection, tried to evaluate the influence of condom usage in the lesion evolution. The couples were randomly split (randomised trials) into two groups (72 couples from group A used the condom at every intercourse, and 76 couples from group B never used the condom). The patients were checked every 3-6 months, using colposcopy, cytology and HPV tests. The results showed a rate of regression at 2 years of 53% in the group that used condoms compared with a rate of regression of 35% in the group that did not use condoms. Similarly, the percentage of HPV-negative patients at HPV tests was 23% in the first group compared to 4% in the second group<sup>(6)</sup>.

### The condom as a contraceptive method

The condom ensures contraceptive protection in 98% of cases when used regularly and correctly, and an 87% protection when usually used<sup>(2)</sup>. At the moment, worldwide, approximately 225 million females from countries with medium or low income desire to prevent the occurrence of an unintended pregnancy, but they do not use a contraceptive method<sup>(7)</sup>. According to WHO, every year between 40 to 50 million induced abortion were performed, meaning approximately 125,000 daily induced abortions<sup>(8)</sup>. Furthermore, annually, there are around 47,000 cases of death as a result of the complications resulted from abortion procedures<sup>(7)</sup>. Worldwide, approximately 62% of the females aged between 15 and 49 years old use a contraceptive method, the percentage of females from high-income countries being double compared with the percentage of females from low-income countries.

In Europe, 70% of the fertile women use a contraceptive method, of which around 21% use the condom, 20% use hormonal contraception and 11% use intrauterine devices<sup>(7)</sup>. In Romania, 69.8% of the fertile women use a contraceptive method, of which 22.6% use the condom, 16.2% use hormonal contraception and 6.3% use intrauterine devices<sup>(7)</sup>.

### Condom use errors and risks

According to WHO, the condom offers a protection of 98% against unintended pregnancy and against sexually transmitted diseases when perfectly and regularly used, compared to a protective rate of 87% when it is occasionally used. These differences occur due to

the incidents that can reduce the effectiveness and usage errors. A 2012 meta-analysis<sup>(9)</sup> investigated all the trials between 1995 and 2011, concerning condom usage, user errors and any problem that occurred during the use of a condom. A very frequent problem was the “incomplete” usage, meaning that the condom was discontinuously used during the intercourse – the condom was used after the beginning of the sexual act or it was taken off at some point during the intercourse. Other frequent errors were completely unfolding the condom before putting it on, not leaving enough space at the tip, the air at the tip was not squeezed out, putting the condom on inside out and then flipped it over (this way the outer part of the condom gets into contact with the seminal fluids which then leads to a decrease in contraceptive efficiency and against sexually transmitted diseases). However, the highest rates of error were those regarding breakage, slippage or leakage as a result of user errors concerning the timing and method of removal, or letting the condom touch a sharp object which can affect its structure. A limitation of the meta-analysis can be that the trials were conducted in highly educated countries; if the trials were to be conducted in poorly educated countries, it is most likely that the effectiveness of condoms would be lower. Because of this, the creation of national plans to inform and educate the population about the correct use of condoms is fundamental, considering the fact that condoms are the only contraceptive method that offers dual protection, contraceptive and against sexually transmitted diseases.

### The use of condoms by adolescents

A very important and pressing public health issue is represented by contraception and decreasing the rates of sexually transmitted infections among adolescents. It is known that the age at which the adolescents begin their sexual life is in a continuous decline, which increases the chance of high-risk behaviour, which in return leads to an increase in pregnancies and sexually transmitted diseases in adolescents. The results from the 2019 YRBS<sup>(10)</sup> (Youth Risk Behaviour Survey – a survey conducted in high schools from USA every two years beginning with 1991) showed that 27.4% of the American high school students already began their sexual lives and, among them, 89.7% used a contraceptive method at the last intercourse; out of those, the condom had the highest usage rate (54.3%). In the USA, the percentage of pregnancies among females aged 15 to 19 years old had reached in 2019 an all-time low, as a result of creating, advertising and implementing a contraception plan among adolescents<sup>(11)</sup>.

### Preventing pregnancy in patients under potentially teratogenic treatment

Using teratogenic treatments is sometimes mandatory during pregnancy, although it is widely known that the medication can reach the fetal circulation in a reasonable concentration, or they can alter the maternal

biological parameters that can affect the development of the pregnancy. As a result, a classification of drugs based on their effects on the fetus was created – class D and class X drugs are not recommended in pregnancy.

Already known teratogenic drugs, such as thalidomide, isotretinoin and acicretin, must be administered with great precaution to fertile women and men because they carry a high risk of teratogenic effects that can persist a long period, even after the treatment ended. These drugs are used, with high rates of success, to treat severe dermatological diseases, although in every case contraception is recommended. In case of thalidomide and isotretinoin, it is necessary that two contraceptive methods are used 30 days prior to the treatment and 30 days after the end of the treatment. Regarding acicretin, it is necessary to use two contraceptive methods for three years after the end of the treatment<sup>(12)</sup>.

## Conclusions

The condom is a safe, efficient, easy to use, available without prescription, with no adverse effect contraceptive method, and the only one that can also offer protection against sexually transmitted diseases. The use of condoms is highly recommended for the following groups: persons without a stable relationship, women who cannot use hormonal contraception, people with sexually transmitted diseases, patients currently on or after teratogenic treatment. Developing national plans that promote the use of condoms as a contraceptive method against unintended pregnancy and highly severe infections (HIV and other STDs) can lead to a decrease in the number of induced abortions and to a lower mortality rate. ■

**Conflict of interests:** The authors declare no conflict of interests.

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