

# Adolescent sexuality, STI's and HPV

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## Introduction

Adolescence refers to the transitional phase of physical and psychological development that occurs from puberty to adulthood. This phase includes a desire for autonomy and an increase in sexual risk-taking behaviours, making adolescents particularly vulnerable to sexually transmitted diseases. The Youth Risk Behaviour Surveillance Systems trend from 1991 to 2015 reports a decrease in the rate of sexual activity from 54% to 41% and the rate of sex with more than four partners from 19% to 12%.<sup>1,2</sup> In the United States, approximately 5 to 10% of teens identify as lesbian, gay, or bisexual.<sup>3,4</sup> Youth from 15 to 24 years of age account for a disproportionate number of new sexually transmitted infections (STI's) and approximately 25% of sexually active adolescent females have had a sexually transmitted infection.<sup>5,6</sup> In South Africa young women between the ages of 15 and 24 years made up 37% of new HIV infections in 2016.<sup>7</sup> Improvement of adolescent sexual behaviour should be one of the primary goals of the 21st century. This includes providing protection from sexually transmitted diseases, improvement of contraception compliance and the correct use of mass media. South Africa's commitment to this is shown in one of the millennium development goals to combat HIV and other diseases. The World Health Organization also identifies adolescent health as a worldwide priority.<sup>8,9</sup>

## Understanding adolescent sexuality

Human sexuality is a broad term that includes the interaction among anatomy, hormones and physiology, psychology, interpersonal relationships and sociocultural influences.<sup>10</sup> Understanding terminology is helpful in gaining insight into adolescent health in order to provide appropriate health care. Biologic sex refers to anatomic sex, either male or female, or rarely both. Gender identity is an individual's innate sense of being male, female, or somewhere in between<sup>11</sup> and is generally established at some point during early childhood. Gender expression is how gender is presented to society but does not necessarily correlate with gender identity. Gender role is society's expectations of attitudes, behaviours, and personality traits typically based on biologic sex and could be contradictory to gender identity. Sexual orientation refers to an individual's pattern of physical and emotional arousal (including fantasies, activities, and behaviours) and the gender(s) of persons to whom an individual is physically

or sexually attracted while sexual identity is an individual person's assessment of her or his sexual orientation<sup>12</sup>. Sexual behaviour can be discrepant from adolescent gender identification, sexual orientation, or sexual identity and same-gender sexual contact can be a part of "straight" adolescent development.<sup>13,14</sup>

Sexuality is influenced greatly by the culture in which one lives.<sup>15</sup> During early childhood, parents play a major role in an individual's impression of gender or sexuality, while during adolescence these influences broaden with peer, media including social networking sites, and community norms. This has shown a strong association with increased risky sexual behaviour and its adverse effects including sexually transmitted diseases and human papilloma virus (HPV).<sup>16-19</sup> A subset of sexuality includes the "sexual minoritized" group which refers to identities that do not conform to distinct labels as well as lesbian, gay, bisexual, and transgender identities. These identities and expressions differ from cultural norms. This group is more likely to report engaging in behaviours that increase their risk of STI's such as multiple partners, lack of condom use, using alcohol or drugs before sexual activity.<sup>4,20</sup>

## Sexually transmitted diseases and human papilloma virus

The highest prevalence of STI's, worldwide and in Africa, are in young people.<sup>21,22</sup> One of the most common STI's is HPV, with a peak occurring during adolescence and decreasing with increasing age.<sup>23</sup> Women who sexually debut at  $\leq 16$  years are at higher risk for being HPV infected.<sup>23</sup> The median age of first sexual debut in South African women ranges from 16-18 years.<sup>24-26</sup> Adolescent woman in South Africa have a high prevalence of HPV 16 as well as other high risk HPV (hrHPV) types. These women also have a high incidence of co-infection with other STI's such as Chlamydia trachomatis (CT), Neisseria gonorrhoeae (NG), Trichomonas vaginalis (TV) and herpes simplex virus (HSV).<sup>27</sup>

In the USA, rates of genital chlamydia, primary and secondary syphilis and genital gonorrhoeae among adolescent females have increased between 2015 to 2016.<sup>28</sup> Re-infection with an STI within a few months after an index infection is very common.<sup>29,30</sup> This repeated STI infection is a risk factor for a higher rate of HIV acquisition. There is a well-known association between HIV and HPV with HPV increasing the risk of HIV acquisition and in turn HIV increasing the risk of HPV acquisition and persistence.<sup>31,32</sup> Adolescents are at low risk of cervical cancer however, HIV-positive adolescents are at high risk for abnormal cervical cytology and are more likely to have persistent HPV infections.<sup>33</sup>

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**Risk factors for STI's specific to adolescents****Biologic factors**

Cervical ectopy with exposed columnar epithelium is more susceptible to sexually transmitted organisms such as NG, CT and HPV.<sup>34</sup> Another postulation is that lower levels of secretory immunoglobulin exist in adolescents compared to adults.<sup>35</sup> Vaginal microbiotas play an important role in vaginal immune and inflammatory responses.<sup>36</sup> Vaginal microbiotas change after the onset of menarche that may deem adolescent females more susceptible to STI's.<sup>35</sup>

**Behavioural factors**

An important factor is the time elapsed since first sexual debut. An STI is diagnosed in 25% of adolescent urban females within one year of sexual debut.<sup>37</sup> Early sexual debut, multiple partners, new partners or partners with multiple partners, non-compliance to condom use, alcohol and other drug consumption are associated with an increased acquisition of STI's. These behavioural traits are specific to adolescents.

**Others**

Other factors include mood disorders, that may increase the risk of substance abuse, and residing in a detention facility, due to the risk of multiple sexual partners who may already have existing STI's.

**Specific challenges in adolescent sexuality and STI's****Dating violence**

The highest incidence of dating violence is found in adolescent females ages 16-20 years with reported rates of 20%.<sup>38-40</sup> Many cases still remain unreported, hence it is important to screen for this in order to offer guidance and support.

**Sexual minority youth**

This group is known to have increased sexual risk behaviours, victimisation, and adverse health outcomes. This includes child abuse, bullying, sexual harassment, dating violence, mental health problems, substance use, and unprotected sex with risks for STI's and pregnancy.<sup>41</sup>

**Confidentiality and consent**

Stigma and discomfort associated with various aspects of sexuality including specific sexual behaviours, gender and sexual variance, and early sexual activity could result in a delay in seeking medical attention. Lack of, or perceived lack of confidentiality is an important obstacle to adolescents seeking medical care for STI's.<sup>42</sup> Medical records may be seen by parents and pose a risk to adolescent confidentiality for STI-related care. Pharmacists or other medical personnel may compromise confidentiality.

In South Africa the Sexual Offences Act allows consensual sex for persons 16 years and older. This creates an obstacle to seeking care when a parent of an adolescent aged 16-18 years does not consent to their child having sex or when an adolescent younger than this is sexually active with an STI.

**Challenges to seeking medical attention and effective treatment of STI's**

One of the main problems in the treatment of STI's is that most infections in girls remain asymptomatic until serious complications occur. This was shown in a recent survey of home-based sampling on young girls aged 15-24 years in rural KwaZulu-Natal. A high prevalence of STI's and bacterial vaginosis (BV) was found, however most infections were asymptomatic and would not have been identified or treated under the national syndromic management guidelines.<sup>43</sup> More than two thirds of non-ulcerative STI's (such as gonorrhoea,

chlamydia and trichomonas) are either asymptomatic or occur only with nonspecific symptoms like minor vaginal discharge, vulval itching and urethritis. In some settings, the proportion of infections considered asymptomatic may be even higher as young woman may perceive certain, commonly experienced STI symptoms as "normal". The only possibility of detecting asymptomatic infections is the use of laboratory tests. In resource poor settings, doing this is hampered by the fact that most currently available tests are both difficult to perform and expensive. Furthermore, the most common laboratory tests for diagnosing gonorrhoea, chlamydia, trichomonas and syphilis all depend on taking tissue samples, either cervical/urethral swabs or blood samples, which is even less likely to be accepted by adolescents than adults. New tests such as polymerase chain reaction (PCR) and ligase chain reaction (LCR) have brought with them the possibility of self-collection of swabs and urine sampling, which should be more acceptable to adolescents. However, these tests are also very expensive and unlikely to be affordable in low resource settings.

Adolescents seem to lack awareness and knowledge of STI's together with a lack of knowledge of the seriousness of STI's. Adolescents learn about sex, reproduction, contraception and STI's from a range of sources such as parents, siblings, peers, radio, television, social media, gossip and observation of others. In many cultures and settings in South Africa, parents and other adult relatives do not talk about such issues to their children, and many do not feel informed or comfortable enough to give advice due to certain religious beliefs.<sup>44</sup> Thus, peers and social media seem to have become the main sources of information about STI's for most adolescents. Some adolescents may not have the skills needed to express a sexual health problem while others may feel anxious about an impending internal and speculum examination which may also result in a delay in seeking medical attention. The latter should be avoided and only done when indicated for assessment of a possible pelvic inflammatory disease, for obtaining specimens for laboratory diagnoses, when a vaginal foreign body is suspected or when screening for cervical cancer is required in an HIV positive adolescent. Adolescents' lack of knowledge of STI symptoms and mode of transmission must be seen as part of a wider problem, which comprises widespread lack of knowledge of all issues related to sexuality. Sexually active adolescent girls are often far less concerned about STI symptoms and HPV contraction and more cognisant of preventing an unwanted pregnancy and menstrual problems.

Lack of access to STI clinics due to long distance travel to clinics and lack of money for transport, inconvenient clinic opening times for adolescents due to school and university commitments, legal barriers in terms of age or parental consent, negative attitudes on the part of service providers and costs are barriers to seeking medical attention. In our public health care system, specialised STI services remain weak, as the focus is mainly on pregnancy and HIV prevention in this age group. Health staff and other providers such as pharmacists establish their own policies which prevent access for adolescents. Many health workers are parents themselves and may bring a parental perspective to their work. They may treat the STI's, but encourage future abstinence instead and fail to promote barrier contraception. Self-treatment is common with delay in seeking medical care in up to 25% of females.<sup>45</sup> Those adolescents who do have access to adequate services and are prescribed the correct treatment may have difficulties with compliance. Failure of filling of prescribed scripts are common and has been reported in as many as 30% of adolescents.<sup>46</sup> The treatment may be lengthy as in the case of chlamydia or painful as in the case of genital warts, or adolescents may have to conceal medication so that their having an STI is not revealed. Partner

notification is generally very poor and hence health care providers should re-inforce the importance of this and aim to treat partners when necessary.<sup>47</sup>

## Management

### Improving on primary prevention of STI's Establishing adolescent friendly clinics:

There is a need to establish clinics that have adolescent friendly approaches, surroundings and opening hours. The adjustment of clinic times should be centered around school and university hours with the possibility of running some of these clinics on site at schools and universities. These on-site clinics have shown to be more approachable for adolescents. The use of brochures, posters and pamphlets in the waiting areas could be welcoming to young individuals.<sup>48</sup>

Training of providers in adolescent friendly approaches:

Many health care providers miss opportunities to discuss gender and sexual health issues for various reasons including lack of knowledge and insight thereof or being uncomfortable with the topic themselves. Adolescent health should become part of basic nursing and medical education in order to incorporate training from earlier stages. Clinicians should strive to counsel adolescents at every opportunity of contact with regard to safe sexual practices and STI prevention. Clinicians should welcome an open, non-jargon-based dialogue with adolescent patients in a confidential, respectful, and non-judgemental manner to help the adolescent recognise the links between sexual risk taking and other aspects of their lives such as substance abuse. Important aspects to focus on include:

**Confidentiality** — Re-assuring confidentiality is the first step in obtaining trust between the provider and the adolescent patient. It is sometimes required to ask partners, friends or parents to leave the consulting room during the consultation to allow adolescents to freely discuss their sexuality. Health care providers should be comfortable in asking the correct questions in order to provide the appropriate health care, education, support, and referral.

**Respect** — Health care facilities and individual practitioners together with staff members should have respect for the diversity in adolescent sexuality by avoidance of the use of derogatory terms.

**Avoiding assumptions** — It is important not to make assumptions as this could compromise the doctor-patient relationship. Not all patients are heterosexual.<sup>14</sup> Avoid terms such as "boyfriend" or "girlfriend" but instead use terms such as "crushes" or "sexual partners". Lesbians are still at risk of pregnancy and STI's as they may experiment with opposite-gender sexual partners.<sup>49</sup> Adolescent females may engage in anal sex as a pregnancy- prevention strategy but may not be aware of the need to use condoms for protection against HPV, HIV and other STI's. Adolescents perception of "safe sex" may be different from what is really safe, hence providers need to enquire about this and provide the correct counselling.

### Sex education

Education about healthy sexuality and practices should be delivered in home, school, community and medical environments. The abstinence-only approach has proven not to be effective and comprehensive sex education by health workers, parents and the community has shown to reduce sexual risky behaviour.<sup>50,51</sup> The use of media and technology has rapidly increased in the last decade amongst youth culture. Health care providers should use social media not

only for sex education, but also for compliance to medication and reminders for follow up appointments. This has proven to be welcoming and acceptable to adolescents.<sup>52</sup> In an attempt to reduce risky sexual behaviour one should assess the patient's understanding and beliefs about STI transmission, the circumstances that affect the patient's sexual behaviour, the patient's readiness to change, negotiating a behavioural goal and identifying an attainable first step toward the goal. It is also necessary to recognise associations in sexual risky behaviour as many youths engage in unsafe sexual practices while under the influence of drugs or alcohol. Helping an adolescent recognise this link is an important step to incorporate substance-use services and safer sex practices. Many adolescents are victims of coerced sex, or "unwanted sex" and may be associated with other health issues including suicidal thoughts, substance use, and concerns about personal safety. This also needs to be investigated by the health care provider in order to provide suitable support.

## Vaccinations

### HPV vaccine

Two types currently available are the bivalent vaccine Cervarix, against HPV 16 and 18, and the quadrivalent vaccine Gardasil, against HPV 6, 11, 16 and 18. The challenge in South Africa currently is to determine how best to reach the greatest coverage with the HPV vaccine. It starts with educating the community, policymakers, legislators and health care providers in order to promote informed decision making. In 2014 the Department of Health of the South African Government had rolled out the HPV vaccine in public schools to all grade 4 girls.<sup>53</sup> The aim is to prevent infection with HPV in young girls and hence transmission of HPV and to later prevent HPV related cancers in adulthood.<sup>54</sup> The vaccine is readily available in the private sector but most medical aids do not cover the cost. The uptake of the vaccine in private schools are still low, however has improved over the last three years. The WHO recommends that all girls aged 9–13 receive two doses of either of the two HPV vaccines intramuscularly, 6 months apart. Three doses are recommended for both vaccines over the age of 13 or if HIV positive. Recent evidence suggests that the two-dose schedule in girls 9-13 years of age is as effective as the three-dose schedule against HPV 16/18 infections. This is aimed at reducing vaccine and administrative costs and improve uptake. The high prevalence of various HPV types found in adolescent females supports the introduction of the Gardasil-9 vaccine which targets a larger number of hrHPV types (6,11,16,18,31,33,45,52 and 58) that cause cancer. However, the challenge around affordability and feasibility of this nonavalent vaccine in low resource settings remain. Due to cultural and religious barriers within the South African context, some parents may not approve of vaccination against HPV. However, children over the age of 12 are able to consent to medical treatment according to Section 129 of the new Children's Act (No 38 of 2005).

### Hepatitis vaccine

The hepatitis A and B vaccination series is recommended by the Centers for Disease control and prevention (CDC) for all adolescents and young adults who have not previously received the respective vaccines. These vaccines are unfortunately not part of the national vaccine roll out and only available in the private sector.

## Improvement on detection of STI's

Due to a large proportion of STI's remaining asymptomatic, the current screening recommendations proposed by the CDC is that all sexually active adolescent females younger

than 25 years should be screened annually for CT and NG. This service should also be offered to men who have sex with men (MSM) due to the increased risk of the above infections. Routine screening for other asymptomatic STI's like syphilis, trichomoniasis, BV, HSV, HPV, hepatitis A - and hepatitis B virus is not recommended, however syphilis screening is recommended in pregnant adolescents and MSM. HIV screening should be discussed and offered to all adolescents at every point of contact. Cervical cancer screening in South Africa starts at the age of 25 years or earlier at the diagnosis of HIV.

### Treatment

Due to a large proportion of adolescents that may fail to fill prescribed scrips or remain compliant to medication, single-dose observed therapy may be preferable when available and possible. Non-stigmatisation and confidentiality remains important in this area. The National Department of Health and health care facilities in the public sector should strive to have availability of medical stock at any given time for treating STI's, as this may serve as another barrier in effective treatment. Health care providers should also aim to treat sexual partners when possible, particularly in adolescent girls with chlamydia and gonorrhoea infection. The appropriate antibiotics should be given to the patient for delivery to partners. Additional information on this is available through the CDC.

There is a high prevalence of re-infection rather than treatment failure with CT and NG in adolescents who were treated for STI's in the preceding months.<sup>55</sup> Young women recently treated for chlamydia or gonorrhoea should be retested approximately three months after treatment is completed and whenever they next seek medical care within the following 3 to 12 months, for early detection and timeous treatment.

### Conclusion

Adolescent sexuality together with STI and HPV prevalence has evolved and has become an important area of female health in preventing long term sequelae. Health care providers should be educated and trained in order to provide effective health services for adequate prevention, treatment and support for this very vulnerable population.

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