Sexually Transmitted Infections

Issues in Adolescent Health and Development

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Preface

There is widespread acknowledgement that although adolescents share many characteristics with adults, their health-related problems and needs are different in a number of significant respects. Following on from this, there is a growing recognition among clinicians and public-health workers alike that the approaches used to prevent and respond to health problems in adults need to be tailored (to a greater or lesser extent) if they are to meet the special needs of adolescents.

The FCH department of Child and Adolescent Health and Development (CAH) in collaboration with other WHO departments has initiated a series of literature reviews and discussion papers, in order to identify existing recommendations on clinical management, and to assess how appropriate these recommendations are for adolescents across a wide range of health issues. This process has also led to the formulation of new recommendations on clinical management where none existed, or where existing ones were inappropriate.

This same process is also contributing to the improvement of existing WHO guidelines and algorithms and to the development of new ones to enable health-care providers to meet better the special needs of adolescents effectively and with sensitivity.

The current review looks specifically at data that address various aspects of sexually transmitted infections (STIs) in adolescents. STIs – including infection with the human immunodeficiency virus (HIV) – represent a major health risk to all sexually active adolescents.

Carefully planned strategies for the provision of preventive and curative RTI/STI services for adolescents are important because they have the potential to influence behaviour and treatment-seeking practices at the very outset of young people's sexual and reproductive lives. For this reason the main aim of this review paper is to consider some of the issues involved in tailoring clinical management practice to meet the special needs of adolescents.

In addition to the present work, reviews and discussion papers have also been carried out – and corresponding documents produced – in the areas of:

- Contraception
- Lung health
- Malaria
- Nutrition
- Pregnancy
- Unsafe abortion

Work is also under way to develop similar documents on HIV/AIDS care; chronic illness; mental health; and substance abuse.

Abbreviations used

AIDS	Acquired immunodeficiency syndrome
ANC	Antenatal care
BV	Bacterial vaginosis
DNA	Deoxyribonucleic acid
FP	Family planning
HIV	Human immunodeficiency virus
HPV	Human papilloma virus
HSV-2	Herpes simplex virus type 2
MCH	Maternal and child health
PID	Pelvic inflammatory disease
RPR	Rapid plasma reagin
RTI(s)	Reproductive tract infection(s)
STD(s)	Sexually transmitted disease(s)
STI(s)	Sexually transmitted infection(s)
TPHA	Treponema pallidum haemagglutination assay
TV	*Trichomonas vaginalis*
UNAIDS	Joint United Nations Programme on AIDS
VDRL	Venereal Disease Research Laboratory
WHO	World Health Organization

PART 1
Introduction

In both developed and developing countries, the increasing incidence and prevalence of STI/HIV among adolescents present a serious challenge to their health and well-being (Adler et al., 1996; Friedman et al., 1997). Studies in western countries, for example, have demonstrated that females under the age of 20 are the population group most likely to be infected with *Candida trachomatis* (Brabin, 1996a). Furthermore, although the overall incidence of gonorrhoea has declined markedly in the USA, it is now highest among 10–14 year olds, after adjusting for sexual activity[1] (Wasserheit & Aral, 1996). In some African countries, the HIV epidemic seems to be levelling off and as the disease becomes endemic, peak incidence shifts to younger age cohorts (Stoneburner et al., 1996). The reasons for this focus of infection in young people are complex, but include biological factors, sexual behaviour patterns and networks, epidemiological transmission dynamics and treatment-seeking behaviour[2].

The four most prevalent STIs are trichomoniasis, chlamydial infections, gonorrhoea and syphilis. The majority of these infections occur in developing countries, at a higher prevalence and incidence than in developed countries. These infections are both preventable and curable provided that adequate antibiotic therapy is used and standardized management protocols are available.

The main impetus for treating STIs has been the HIV epidemic, which has affected as many as 25% of sexually active girls in some sub-Saharan African countries (Fylkesnes et al., 1997; Taha et al., 1998). The syndromic treatment of STIs has been associated with a 40% decrease in acquisition of HIV infection at the population level in one research study in Tanzania (Grosskurth et al., 1995). This decrease is considered to be the result of shortening the average duration of infectivity, thus reducing the probability of HIV transmission.

Treatment of non-sexually transmitted reproductive tract infections (RTIs) such as bacterial vaginosis, which are thought to be very prevalent in adolescents, has also been suggested. Here the rationale is that abnormalities in vaginal flora (such as depletion of vaginal lactobacilli) may also increase the risk of acquiring HIV (Sewankambo et al., 1997).

However, even in countries where HIV infection is at low prevalence, STIs/RTIs are associated with other serious sequelae in the non-pregnant and/or pregnant teenager, such as ectopic pregnancy (Meheus et al., 1992); premature rupture of membranes (Eschenbach D, 1993); complications of abortion

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1 The denominator for rates of STIs in adolescents should be the number who are sexually experienced. In 1995, only 53% of American high-school students had ever had sex; dividing reported gonorrhoea in 15–19 year olds by the number of sexually experienced adolescents indicates that the latter had a risk of infection that was twice that calculated using standard population denominators (Fox et al., 1998).

2 Biological factors – cervical ectopy (normally present in 60–80% of sexually active adolescents) is associated with an increased risk of *C. trachomatis* infection (Stamm and Holmes, 1990).

Sexual behaviour patterns – STI infections in adolescent females have been associated with contact with older partners. In one study in Namibia no STI infections were detected in young sexually active males, which suggested that their sexual partners were young, as yet infection-free, girls (Harms et al., 1998).

Epidemiological transmission dynamics – standard STD epidemiology postulates that all endemic and epidemic transmission of curable STDs is sustained by small subsets of the population; so-called "core groups" (Yorke et al., 1978). High HIV seroprevalence in the USA has been found among imprisoned young females with a history of injecting drug use or prostitution, and among homeless and runaway youths (Lindegren et al., 1994).

Treatment-seeking behaviour – the increase in gonorrhoea rates observed in adolescents in the USA is thought to reflect ineffective health-care contact (Wasserheit & Aral, 1996).

(Blackwell et al., 1993); adverse pregnancy outcome (Hardy et al., 1984); and pelvic infection and infertility (Washington et al., 1985).

The World Health Organization (WHO) has recommended the syndromic management of STI in resource-poor settings where aetiological diagnosis, requiring laboratory facilities and expertise, is not affordable (WHO, 1995). The use of a syndromic approach means that STI treatment can be made available at primary-care level, and more accessible, particularly for women at Maternal and Child Health (MCH)/Family Planning (FP) clinics.

For a variety of reasons, however, current STI diagnosis and management services do not attract a sufficient proportion of adolescents who require care, even in developed countries. A study of the delivery of pre-paid, low-cost preventive services (STI screening and Papanicolaou (Pap) smear testing) to adolescents in Massachusetts, USA found that Pap smears were collected from a group which represented less than half the estimated sexually active age group. Moreover, the level of STI screening covered only 21% of the estimated eligible group of adolescents aged 15–19 years (Thrall et al., 1998). A survey of the provision of sexual health care to adolescents by genitourinary clinics in the UK gives some indication why adolescents may not attend: only 14% provided a full contraceptive service and just 4% held sessions for young people only. None of the clinics were using education approaches regarded as methodologically effective in influencing behaviour change (British Co-operative Clinical Group, 1997).

As stated earlier, carefully planned strategies for the provision of preventive and curative RTI/STI services for adolescents are important because they have the potential to influence behaviour and treatment-seeking practices at the very outset of young people's sexual and reproductive lives.